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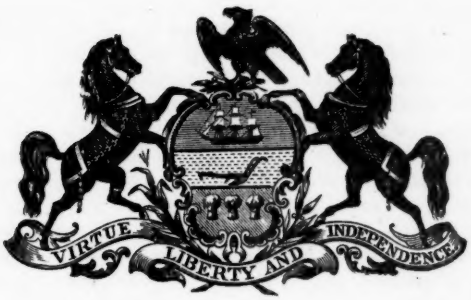

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UNITED STATES GOVERNMENT BUILDING.

THE CENTENNIAL EXPOSITION.

THE greatest gain anticipated from the Exposition is in the education of our people. There is, first, the general education of the masses of visitors in the knowledge of the world, its people and its products; and there is also the special education in every branch of knowledge, of science, of art, and of industry, that may be obtained from a careful study of the grand display that has here been made. In both cases we are afforded all the advantages of object teaching on a vast scale. We select the Government Building for extended notice in the present issue of *The Journal*, because it presents certainly the best organized, and perhaps the most instructive, exhibition on the Centennial grounds. As a whole and in its various departments the results of order and method are everywhere apparent. Such collections as have here been made can be found nowhere else, nor would they have been made at all save under Government auspices. The entire display was organized by a board of government officers, Congress defraying the expense, and it is now in charge of a corps of United States officers, with Lieutenant Henry Metcalfe, of the United States Ordnance Department, in command. The exhibit, as a whole, is a practical miniature representation of the executive departments of the United States Government in active operation. The completeness of the display, its systematic arrangement, and the labelling of everything in the Government Building, are features which cannot fail to impress the observant visitor most favorably.

A visit here is a revelation of wonders connected with the Army and Navy departments, the Department of Agriculture, the Post Office, Patent Office, Signal Service, Ordnance Bureau, Light-house Board and all the subordinate departments and bureaus that are in any way connected with the government. To present an adequate description of the various departments, so fully represented, would require a volume. We therefore, select some features of greatest interest to the educator, leaving the Army and the Navy, the leading departments here presented, to address the visitor for themselves, as they cannot fail to do—the former in its heavy ordnance, its light artillery, its manufacture of rifles and cartridges, in its engineer corps, its quartermaster's department, its historical collections, etc.; and the latter in its heavy guns and small arms, projectiles and torpedoes, steam engineering, construction and repair, yards and docks, equipment and recruiting, provisions and clothing, astronomical and naval observations, etc.

Here may be seen a wonderful collection of curious specimens of shot and shell, small arms of all kinds, ship's guns and howitzers, Gatling guns and other terrible engines of naval warfare, that will show the world how well we are prepared to defend the flag that flies over building and house-top far and near.

Then there are specimens of every description of naval stores from a ship biscuit to a sheet anchor. Marine engines and boilers are also exhibited, showing what improvements have been made by the Bureau of Marine Engineering. Immense cables, with mammoth iron links and hawsers so big that they look strong enough to hold the ship to her anchor though the four winds of heaven were blowing her away. Beautifully finished models of every class of ship on the naval list, including some showing the lines of the famous craft on which Lawrence, Decatur and Macdonough fought and conquered. Lifeboats and rafts of all kinds and shapes are also exhibited; and a handsome case contains the relics of the Polar expedition under Captain Hall, which will prove extremely interesting to those who watch impatiently for the discovery of the distant North Pole.

In the Naval section are also on view the various hospital appointments used in the navy—the beds and blankets, and even the surgical instruments which glitter with something of a ghastly light in the cases. Passing from the Navy Department the visitor enters the Post Office Department, where he can mail his letters and buy stamped envelopes with the old Franklin stamp of the colonial times, which is impressed on the envelopes in the course of their manufacture in this department. Crowds assemble around the machinery that performs this operation, and watch with great interest the cutting, gumming, folding, and stamping of the envelopes, at the rate of about one hundred or more per minute. Here an artistic arrangement of very unpicturesque objects—mail bags—is a triumph of showcase decoration. Nothing that is useful or necessary for the handling of the mails is unrepresented. Maps showing the various post-routes of the United States and Territories hang on the walls, and illustrate the ramifications of the three-cent post through the entire continent. In the Department of Agriculture we find a complete set of maps showing the different areas of the United States where farm improvements have been made, where woods are most abundant, and even the scale of farm laborers' wages over the whole country is shown on a special map. Every tree and shrub, flower and root, cereal and fibre, is shown in their respective sections. The fungi that destroy the different plants are illustrated by photographic and microscopic views, all forming the most remarkable exhibition of this kind that has ever been presented to public view in this or any other country. The various chemical products are also shown by specimens. The earths, with their oils, vines and other productions, are also here. Tobacco, corn, fruits, are arranged according to class for inspection. Birds, insects, fishes and reptiles are represented by magnificent specimens of the taxidermist's art, or by plaster casts painted to the natural colors. The Patent Office presents all the treasures and curiosities of its wonderful collection. Machines that have revolutionized labor, and machines that never could be made to go, are here in miniature. It would be simply impossible for us to notice one-hundredth part of the remarkable objects exhibited by this department; indeed, we must refer our readers to the voluminous guide books and catalogues for any adequate idea as to the number and character of these fruits of American genius and skill. One thing, however, we may add, that each model is perfect and conveys very clearly an idea of the inventor's design. A case here is filled with relics of the great Washington. In these can be seen the clothes worn by him on the most memorable occasions of his life—his swords, camp furniture, tents and other objects of great interest connected with his historic campaigns.

In the Department of the Interior is to be found a vast collection of Indian curiosities, idols and weapons of war and the chase, curiously carved and colored. Warriors of the plains, in full dress, stare at you from quiet corners. Choice photographs illustrate the surveys made in the Western Territories and carry the observer into regions rarely trodden by the foot of the white man. Minerals of all kinds are displayed, and a most remarkable collection of traps used for the capture of fur animals by the renowned trappers who figure so often in song and story.

In the War Department we find the manufacture of arms and ammunition progressing through their various stages, and the operations are watched with great interest by the crowds that continually throng about the ingenious machines. Cartridge shells, bullets, bayonets, gun barrels and all their parts are on exhibition. Here we have every kind of uniform worn by the army from the time of the Revolution to the present day. Cannon and small arms of every class are also here from a twenty-inch Rodman gun to a tiny revolver, the former throwing its half-ton of iron at a single discharge. Horse trappings and camp equipage are arranged in like manner, according to class. The engineer department of the army makes a fine display. In the way of torpedoes the display is full

and rather painfully interesting. Among the specimens, there are some which, bursting under a ship's bottom, would sink the vessel almost immediately. To afford forcible comparison with the appliances by which the destruction of human life has been reduced to a science, as practiced to-day, there are placed on exhibition some rather ancient munitions of war, including a Spanish gun cast in the year 1490, and used in the conquest of Mexico by Cortez, the brass six-pounders presented by Lafayette to aid in the war for independence, a cutlass used by Paul Jones on the "Bon Homme Richard," and other articles of a similar kind. In another portion of the building are figures, life-size, representing the American soldier and sailor in the various uniforms used in the service during the past century.

The Signal Service department, in operation, excites a great deal of interest and close examination on the part of visitors. The weather report has become a fixed institution, carefully consulted every day by all classes of newspaper readers. The manner of collecting reports from signal service stations, relative to the condition of the weather, velocity and direction of the wind, condition of barometer and thermometer, at the points telegraphed from, the process of calculating from these reports, and the making up of the weather maps and reports—all shown lucidly in the section occupied by this department.

A striking exhibit is made by the Light-house Board, illustrative of the different kinds of light-houses erected by the government in various parts of the United States. Specimens are also shown of the different modes of lighting in use, models showing construction of foundations of lighthouses, mineral oils, wicks and all the appliances used in the light-house service. The Treasury and Internal Revenue departments are illustrated by framed cards containing specimens of currency, coins, bonds, stamps, etc. The Internal Revenue department exhibit also contains specimens of instruments used by its officials, and many other interesting articles. The exhibit of the National Bureau of Education, which will attract the attention of the reader, is also found in the Government Building.

In the display made by the Smithsonian Institution, in connection with those of the Indian Bureau of the Interior Department and the United States Food Fish Commission, there is a world of interest peculiar to that exhibit. A full collection is presented of the implements, weapons, utensils, costumes, ornaments, pottery, and other remains of the aboriginal races of this continent; also a complete illustration of the fisheries of our rivers, bays and sea coast, including actual specimens of many of the fishes, moulded and painted models and pictures of numerous others, together with the boats, apparatus and fishing tackle and weapons used in that pursuit, both by the present races of whites and their predecessors among the Indians; also of the products of the mine and of the quarry, in the splendid collection of ores of the precious metals, numerous specimens of brilliant and unique crystallized minerals, marbles, building stone, coals, ores of iron, of copper, lead and other metals. Never before has this institution done so much to carry out the injunction of its illustrious founder: "To diffuse knowledge among men."

SMITHSONIAN INSTITUTION.

The exhibit made by the Smithsonian Institution occupies the greater portion of the western section of the building, and comprises: 1. Ethnology of the United States; 2. Mineral resources of the United States; 3. Animal and fishery resources of the United States; 4. Publications of the institution, models, drawings, maps, etc.

INDIAN AND ETHNOLOGICAL COLLECTION.

The southwestern section of the building is occupied by a highly interesting collection to illustrate the enthnology of the United States. It is in charge of Dr. Charles Rau, and is made by the Smithsonian Institution in conjunction with the Indian Bureau of the Interior Department. The extreme western portion of the section is occupied by a large collection of photographs of Indian life and character and of Western scenery. Near by, arranged in cases, and occupying the greater portion of the section allotted to the Indian Bureau, is a most interesting exhibit of Indian work in stone, wood, bark and pottery. The specimens are very numerous, and have been collected from all parts of the United States as well as from British Columbia, Alaska, Greenland and Mexico. The collection of stone implements and weapons is probably the largest and most complete in existence, while that of pottery is almost equally valuable and attractive. Near the models of ruins of Colorado and Arizona is a collection of pottery taken from these ruins. It is decorated in black and white, and blue and white patterns. These patterns are rude, but show that the designers had mastered the art of preserving the patterns throughout and knew how to combine colors and forms with some glimmering of taste. The designs are all very simple. There is also exhibited from the same section, matting made of strips of bark. The stone implements embrace specimens from almost every state of the Union. There are net sinkers, chisels, "scraper-like instruments," cutting tools, weapons used in ceremonial observances, adzes, gauges, digging tools, a beautiful collection of arrow heads, and spear heads, perforators, grooved axes or tomahawks, some of them very large and ponderous, hammers, mauls, pierced stones for clubs, a great variety of pipes in clay and stone, boat-shaped articles, plates, vessels for eating and

drinking, rings, beads, tubes, pestles and mortars, and a very fine collection of large stone implements from California, made by pre-historic tribes; rude sculptures in stone, a cast of one of the Mexican calendar stones, highly and delicately carved with images; idols carved out of stone, from Tennessee and Mexico, and a carved head of stone formerly owned by Thomas Jefferson, and now exhibited by Dr. W. C. Dabney, of Virginia. There is also a great variety of objects carved out of bone. Among these are wedges, smoothing tools, perforators, harpoon heads, rude knives, club heads, adzes, etc. A number of neatly carved cups and spoons of shell are exhibited, together with beads in great number and variety. There are curious idols made by the Mound Builders, carved and painted figures of wood, figures carved out of bone and inlaid with glittering shells; figures in wood, carved and painted in the most fantastic manner, by the Alaska Indians; a number of utensils of metal, bone and wood, carved and made by the Blackfeet Indians; a box of painting tools from the Koloosh Indians, of Alaska; a large wooden figure painted in red, white and blue, with a hideously distorted face, carved by the Indians of Vancouver's Island; spoons made of the horn of the mountain goat, by the Northwest Coast Indians; berry spoons, ladles, etc., of carved wood from the Alaska Indians; a spoon made of horn from Greenland; war-knives and hatchets of steel from the Proquet Indians; clubs, with projecting steel points, from the Lake Superior Indians; war clubs from the Indian tribes of Colorado; ancient stone war clubs used by the Kontznon Indians, of Alaska; war knives from Sitka; wooden chests carved and painted by the Northwest Coast Indians; a beaver's head and claws supporting a cup, all carved out of wood, and the contents of which, the label tells us, "made one drink of whisky."

The display of pottery is particularly attractive and occupies the eastern end of the section. There are two vases in the collection from Mexico, which are really excellent specimens of decorative work of a high order. One is colored in black, gold and silver, while the other is covered with an elaborate pattern in various bright colors tastefully blended. There are also some good specimens of pottery from the Moquis and some from the Alaska Indians. From the Esquimaux there are several stone lamps.

A row of cases on the southern line of the section contains a number of highly interesting specimens of Indian dress. In one case is exhibited the very complete and valuable collection made by Major J. W. Powell, during his exploration of the Colorado River of the west. It comprises the different dresses worn by the Pah-Utes of Utah, including a variety of specimens varying greatly in size, richness of decoration and in style, but all made of the same material, buckskin. About the neck of one of these dresses is hung a necklace made of the talons of a bird. The costume consists of a shirt, leggings and moccasins. The shirt is generally decorated with a baldric of red flannel or other material covered with bead-work in red, black, yellow, white and blue. From the edges of the shirt and the sleeves hangs a long fringe made of buckskin thongs. The leggings are similarly ornamented. The back of the shirt is also decorated with the wings of birds, while from the shoulder sometimes hangs the tail of some animal. The moccasins are of buckskin, embroidered in bead-work. The next cabinet contains samples of fur and skin dresses worn by the Esquimaux of the Northwest Coast. Among these are some handsome mantles made of the variegated plumage of birds. Near by is a collection of baskets, mats, sashes, hats, gloves, feather ornaments, bead work, etc. There are several models of Indians and Esquimaux in full dress, and a collection of war shields and weapons used by the Grosventre Indians of Dakotah, the Indians of Florida, and the Sioux and Comanche tribes. In the adjoining cabinet are exhibited baskets, water bottles, etc. There is also a very full display of food products raised by the Indians, such as Indian corn; moss, used with spruce gum; acorns which are ground into flour and made into bread; seeds used for food; pine nuts, roots, beans, and specimens of salt used by the Apaches and by the Neshanam, Tule and Tejon Indians of California.

METALS AND MINERALS.

The northwestern section of the building is occupied by a collection made under the auspices of the Smithsonian Institution, and especially for the International Exhibition, to illustrate the mineral resources of the United States. The objects of the collection have been to illustrate: 1. The nature and variety of the mineral resources of the United States. 2. The geographical distribution and geological associations of the minerals. 3. The extent to which they have been utilized. 4. The mechanical, metallurgical and mechanical processes by which they are converted into useful products; and 5. The inherent and comparative qualities of these products. A portion of the collection—particularly the crystallized minerals, and marbles and granites—has been arranged according to the nature of the specimens without regard to the locality from which they came, but the greater part of the collection is arranged geographically by states.

The most inviting display of crystallized minerals is contained in two upright cases which are placed in the extreme northwestern section of the building. This exhibit is said to embrace the finest display of crystallized minerals in the whole exhibition; and the specimens have been selected as exhibiting the handsomest and rarest forms in which these minerals are found, but are not designed to be in any sense a complete collection, representative of all the crystallized minerals of the country. Here are to be found some specimens which are unique and perhaps unsurpassed in any other collection in existence. They are contributed by the Rev. E. R. Beadle, D.D., Joseph Wilcox. Theodore D. Rand, and Clarence B. Bement, of Philadelphia, and Wm. W. Jefferies, of West Chester, Pa. It is a noteworthy fact that there are more fine cabinets of minerals in Philadelphia and vicinity than anywhere else in the country. Among the specimens in this collection, which are particularly worthy of mention as being rare and valuable minerals, are crystals of feldspar, from Colorado and Delaware county, Pa.; garnets, from Delaware co., Pa.; tourmalines, from St. Lawrence co., N. Y.; mica, from Canada, St. Lawrence co., N. Y., and Chester co., Pa.; rutile, from Chester co., Pa., and from Lincoln co., Ga., said to be among the best specimens of the kind extant; corundums, from Delaware and Chester counties, Pa., and from North and South Carolina; wavellites, from Chester co., Pa.; sphenes, from Lewis co., N. Y.; apatites, from Canada; brucites, from Lancaster co., Pa., (found nowhere else in the world in fine crystals); beryls, from Delaware co., Pa., and from North Carolina; and particularly fine specimens of diaspore, from Chester co., Pa. There are also very large andalus-

ites from Delaware co., Pa., fine amethysts, rock crystals, zircons, storaldes, spinelles, etc.

The collection of marbles, which occupies the western end of the section, is extremely interesting. The specimens are chiefly from Vermont and Tennessee. The Rutland Marble Company makes a very elaborate and handsome display, comprising an immense block of beautifully grained marble, entirely white, and said to be equal to the finest Italian marble, and a number of slabs and blocks in different colors. Ripley & Sons, of Centre Rutland, send a variety of white, gray and blue marbles, in slabs and in cubical blocks, the faces of which are either in the rough to snow the grain, polished, or rough dressed. From the Richmond Quarry, Brandon, Vt., a block of white marble has been sent with the face beautifully carved in flowers; and from Roxbury, Vt., some fine specimens of verde-antique marble are exhibited, together with some highly-polished specimens of pure black marbles from Isle La Motte, Vt. There are also from the last named quarry sections of floors laid with tiles of variegated marbles in pleasing tints of red, white, black, etc. The exhibit of marbles from Tennessee is very attractive. Some of the slabs are mottled with the impressions of fossils embedded in the marble. These give the stone a very curious appearance, and it is a very interesting thing to trace out in the marble the distinct outlines of these fossil remains.

The collection of ores and minerals for the state of Pennsylvania comprises chiefly iron ores, copper ores, and nickel and cobalt ores. One of the most noticeable features in this collection is the exhibit made by Joseph Wharton, of Philadelphia. Mr. Wharton is engaged in the business of preparing nickel plate, and he makes a most interesting display of objects designed to illustrate the various stages of manufacture. There are first specimens of nickel ore in great variety from the Gap Mine, Lancaster county, Pa. Then there is the nickel ammonia sulphate used in the manufacture of the plate, cast nickel, cubes of nickel, a bar of wrought nickel, which may be bent like wrought iron, nickel magnates, specimens of nickel plate, and of the different vats used in nickel plating. Besides these there are specimens of cobalt found in the same ores with nickel, and similarly used for plating. It is very much like nickel, but is of such rare occurrence that it is very little used for plating. In addition to this exhibit there is a fine collection of copper ores from the Cornwall ore banks of Lebanon county. Among these specimens is a large lodestone, or magnetic iron. The collection illustrates the various stages of the manufacture of copper by the Chemical Copper Company, of Phœnixville. There is a full collection of specimens of fire-brick from Philadelphia manufacturers, together with zinc ores from Bethlehem, used by the Lehigh Zinc Company, and including specimens which illustrate fully the different stages of manufacture from the ore to the manufactured spelter. From Delaware county, Pa., a large collection of scythe stones is sent, and there are also exhibited specimens of cryolite, used in the manufacture of alum, bi-carbonate of soda and aluminum salts. The Black Diamond Steel Works, Pittsburgh, Pa., make an exhibit of objects illustrating the process of the manufacture of crucible steel. These objects are placed in a prominent position in the central aisle, near the western end. The collection embraces specimens of iron ore and specimens of iron as it appears in the various stages of its manufacture into steel, ingots of steel, steel bars broken to show the fracture, and twisted to show the great tenacity of the metal, broad axes, hatchets, picks and hoes drawn from the ingots, boiler plate, steel shavings, a tall column made of bars of steel of various sizes, steel springs, knives for reaping machines, and a number of finished tools of different kinds.

The exhibit of ores from New Jersey is very complete. From Franklin there are some fine specimens of zinc ores, including franklinite, which occurs only in this locality, and zincite, which also occurs in the vicinity of Franklin in larger quantities than anywhere else. There are some fine specimens of ruby zinc, or bright red zincite, associated with green willemite. In addition to these are specimens of translucent yellow willemite, and several pieces of ore showing dykes or faults in the rock. Specimens are exhibited of franklinite, containing both zinc and iron. After the zinc is extracted the residue is treated for iron, from which spiegeleisen, used in making Bessemer steel, is extracted. The New Jersey Zinc Company and the Passaic Zinc Company exhibit a large quantity of spelter. In addition to the zinc ores, New Jersey contributes a collection of iron ores, mostly from Morris and Sussex counties. There are also specimens of pig iron made from the ore.

From Michigan a very interesting exhibit is sent, including iron ore from the Barnum Mine, Marquette county, and the Jackson (Michigan) Mine, Champion and New York Mines. These comprise specimens of wall rock of the iron mines, and limestone and coal used in smelting, as well as samples of pig-iron and several beautiful specimens of native copper from the Lake Superior region. Among these are specimens of ore with boulders imbedded in them. From the Cliff Mine is exhibited a large sheet of native copper, found embedded in gangue. The Copper Falls Mine exhibits copper and silver associated in the same ore, together with stone hammers used by the aborigines in breaking off the copper.

Nevada has a larger and more complete representation of her mineral resources than any other state, owing to the liberal appropriation by her legislature of $20,000 to secure a representation of the products and resources of the state at the exhibition. Among the exhibits are specimens of native sulphur in large blocks, crystallized wulfenite (very rare and fine), native salt, borax, gypsum, carbonate of soda, sulphate of copper, and a very large representation of gold and silver ores. One case is filled with specimens of ruby silver from the Reese River district, together with some very valuable specimens of stephanite. Four cases are filled with ores from the famous Comstock Lode or "Big Bonanza," and among the specimens is the first bar of silver, about two inches in length, ever taken from this lode. There are beautiful crystals of aragonite and specimens of silver retorted from the amalgam. From Temescal tin ore is exhibited. This is quite an interesting feature of the collection, as tin is very rarely found in any quantity in this country. Beautiful incrustations of malachite and azurite, together with crystallized salt, amethyst quartz, and plain quartz, are also exhibited.

California sends a case containing silver-bearing copper ores from Panament, Ingo county, which present a very handsome appearance from their mottled blue, green, yellow and brown surfaces. There are also specimens of drills used in drilling ore, and

giant powder cartridges for blasting. Cherokee county sends sandstone containing diamonds and specimens of gravel containing beautiful nuggets of gold. There are gold ores from all the principal mines, some of the specimens showing the entire width of vein; also a number of specimens of mercury from Sonoma Lake and other counties, and a beautiful specimen of the rare mineral meta-cinnabar. East of the California collection is a double row of large blocks of ore from various localities west of the Rocky Mountains, and near by, in the central aisle, is a large meteorite, weighing 1,400 pounds, from Tuscon, Arizona.

New York, Virginia, North and South Carolina, Tennessee, Missouri, Colorado, Oregon, Montana, and other states and territories also present exhibits of their mineral resources.

EXHIBIT OF LAND ANIMALS.

The collection made by the Smithsonian Institution, to illustrate the animal resources of the United States, occupies, together with the fishery exhibit, the principal portion of the northwestern section of the building. Many of the objects have been placed in the same cases with the fish exhibits, but as far as possible they have been kept distinct. The collection may be divided into three groups, under the following heads: 1. Preserved specimens of animals. 2. Means of pursuit and capture. 3. Animal products and their preparation. The exhibit is confined to non-domesticated animals, in view of the fact that a very full exhibit of the domesticated animals is made by the Agricultural Department, and the design has been to exhibit only such non-domesticated animals as are directly beneficial or injurious to man. Although every species, down to the very least, exercises some influence upon the well-being of man, it seems scarcely practicable to attempt the exhibition of those which affect it only in an indirect way.

The collection of preserved specimens of animals embraces some of the finest specimens of the wild animals of North America which can be obtained, and has been prepared with great care. It occupies a position at the eastern end of the section, and near the exhibit of the Springfield Arsenal. The bison or buffalo of the plains is represented by three fine specimens—one large bull and two cows. The animals have been preserved with great skill. North of these is a gigantic specimen of the white polar bear, with wide open mouth, made of carved and painted wood. Its coat is pure white, with the exception of one small spot on the right shoulder. The great breadth of chest, enormous limbs, and long, sharp claws, fully bear out this animal's reputation for strength and ferocity. A little to the south is a grizzly bear from the Rocky Mountains, which is inferior in size and ferocity of appearance only to its Arctic neighbor. Near the southwestern end of the section is a group of smaller bears, embracing some very handsome specimens of the black bear, cinnamon bear and brown bear. The collections of horned animals is very complete, and embraces specimens of the North American elk, barren and woodland carribous, (belonging to the stag family), male deer, Virginia deer, peccary, mountain goat, moose, prong-horn antelope, big-horn sheep and moose. Among the fissipedia (those animals which have separate toes) are specimens of pumas, jaguars, ocelots, lynxes, wolves, foxes, fisher cats, martens, minks, wild cats, wolverines, skunks, otters, sea otters, bears, (already described) raccoons, ferrets, sables, badgers, wolves, beavers and yaragundi. The rodents include specimens of squirrels, prairie dogs, marmots, beavers, porcupines, rabbits and gophers (rodents found in the Mississippi valley and along the Mississippi river.) There will be no exhibit of specimens of birds or reptiles, although the economic uses of some of them are shown. The insects are also unrepresented by specimens.

The implements and apparatus for hunting are divided into: 1. Hand implements or tools for striking, cutting and thrusting. 2. Implements for seizure of objects, such as barbed implements, grasping lines (nooses), snares, thrown nooses and loaded lines. 3. Missiles, including hurled weights, hurled sticks, hurled spears, slings and spears thrown by straps, missiles propelled by throwing sticks, bows and arrows, guns and accessories. 4. Nets. 5. Traps. 6. Decoys and disguises. 7. Methods of transportation. 8. Personal equipments.

The collection of hand implements includes a highly interesting collection of clubs used by the Indians of the west and also by the Northwest Coast Indians; knives of various patterns and sizes, including the stone and bone knives used by the Indians and Esquimaux; axes, tomahawks, cleavers and hunting spears. The implements for the seizure of objects embrace chiefly barbed spears for thrusting, used to a great extent by the Northwest Coast Indians. Some of these have fixed heads and others detachable heads. The collection of nooses is confined almost entirely to the lariats made of hair, of hemp, and cowhide by the Indians of the plains. There are also bird slings, used by the Esquimaux, and entangling lines, chiefly used in catching birds. The collection of missiles is very complete and curious. It embraces, among other things, an interesting set of throw sticks, used by the Moqui Indians of New Mexico for hunting rabbits. These closely resemble the boomerang used by the natives of Australia, specimens of which are placed beside the throw sticks. There are also darts, lances, slings and a number of bows and arrows, the majority of which, however, are exhibited in the Indian and Ethnological collections. In the collection of hunting nets are rabbit nets used by the Indians of the southwest, bird mesh nets, clap nets for birds, rabbit spring nets, and sieve nets for birds. The various kinds of traps used in almost every section of the country are very completely represented, including specimens of steel traps used in catching bears, box traps for catching hares, foxes, squirrels, opossums, etc., and steel traps for catching rats, birds, muskrats; spring traps for catching hares, grouse, etc.; the log dead-fall used in the Mississippi Valley, fall traps for partridges, grouse snares, and fox traps made of bone, used by the Esquimaux.

FISH COMMISSION EXHIBIT.

The exhibit made by the United States Fish Commission in conjunction with the Smithsonian Institution, occupies the greater portion of the space reserved for the exhibit of the animal resources of the United States, and is designed to illustrate as completely as possible the fishery resources of the country. Much time and labor have been spent in procuring as complete a representation as possible of the fishes found in American waters. To this end photographs, drawings and plaster casts of fish, together with fish preserved in ice, have been obtained, as also a very complete and interesting collection of fishing vessels, boats, etc. (full size and models), apparatus used in whale fisheries, nets, traps and pounds, prepared specimens of aquatic animals,

other products of the waters, and economical applications of some of these products.

On an upright partition near the specimens of fishing boats is exhibited a beautiful display of seaweeds from deep sea soundings and from the surface. They are preserved on card board and framed, and they comprise some very rare and pretty specimens colored in beautiful tints, from the palest pink and green to the richest purple. Extending from east to west is a double line of partitions, on which are arranged the admirable collection of plaster casts of fish specially prepared for the Smithsonian Institution, together with the specimens of fishing tackle, which have already been mentioned. The northern wall is occupied by a very large and fine collection of photographs of fish. The plaster casts are by far the most interesting portion of the fishery exhibit. These casts are obtained in the following manner: The artist of the Smithsonian Institution, Mr. J. H. Richard, first copies in water colors the fish fresh from the water. Plaster casts are then taken from the fish, and the casts are painted in imitation of the water colors. This is done with the greatest minuteness, each scale being painted separately. It is claimed that these specimens are much more accurate representations of the living fish than preserved specimens would be, since the color of the living fish is often not retained after death. The models, however, are colored from paintings of the fish made while it is still alive. There are 408 of these models, all arranged on screens placed at regular intervals. Parts of 234 families of fish are represented, and it is believed that none of the food fishes of any importance of the North American coast, from the Arctic coast to Mexico, are omitted. The collection has already cost between $20,000 and $25,000, and is undoubtedly the finest of the kind in the world. In a large refrigerator placed near the north entrance to the building are exhibited, frozen, some very fine specimens of the pompano, a delicious fish, found in abundance in the vicinity of Charlestown and Mobile, but rarely caught in this latitude; also salmon, red snappers, striped sea bass, sheepshead, rock, halibut, California salmon, brook trout in snow from the Adirondack Mountains, English brook trout, sent from the Liverpool Free Museum last fall. Nearly all of these specimens were placed in the refrigerator in August last, and are still in a perfect state of preservation. Near by is a small refrigerator containing specimens of fresh fish sent every day from the Philadelphia, New York and other markets along the coast.

The whale fisheries are very fully represented by models and specimens. There are three very interesting models representing respectively "a whale in its dying flurry," "striking the whale," and a camel floating dock, for floating whaling vessels over Nantucket bar. Near these models is a group of objects used in whaling, such as harpoons, lances, axes, harpoon lines, tubs, boat kegs, hand mincing knife for cutting blubber, head axe, used in getting off the whale's head, knives for cutting blubber on shipboard, and four enormous jaw bones of whales. There is also a model of a whaling vessel five feet long, which has not yet been unpacked; and plaster casts of the white whale and of the black sperm whale. Near this group is a fine collection of preserved seals, walruses and sea lions. Oysters are represented by a very full collection, not only of shells of oysters in a healthy condition, but also of oysters destroyed by whelks, boring sponge, starfish, and other enemies, together with specimens of oysters growing on stones, rubber boots, jugs, etc. The collection of pearl oysters and of ornaments made from them is very beautiful. There is also a full collection of clams, mollusks, mussels (some of them in the most delicate and beautiful tints), gapers and sea shells of various kinds, together with the different varieties of crabs, lobsters, sea urchins and starfish.

The methods employed by the Fish Commission for the production and propagation of fish, together with the appliances and apparatus used, are fairly represented. These include fish-ways to enable salmon and shad to force their way over dams in rivers, apparatus used in collecting specimens of fish, publications of the Commission, and the varied appliances which are at present made use of in propagating fish and oysters.

DEPARTMENT OF AGRICULTURE.

This occupies the western side of the southern projection of the Government Building, and is classified under five distinct heads, viz: Chemistry, Natural History and Economic Museum, Microscopy, Botany and Statistics.

The collection of the Chemical division consists of soils, rocks, marls, fertilizers, agricultural and horticultural products, and materials manufactured from them. The object is to show as far as possible in this way the history of soils, and their formation by disintegration and decomposition of rocks; marls, including the green sand, calcareous and phosphatic, from different ages; natural fertilizers and their application in manufacture of artificial fertilizers; the agricultural and horticultural products, the value of which depends upon their chemical composition, and their utilization by means of economic methods involving chemical processes. To carry out this plan a series of samples of soils is arranged with reference to the geological formations from which they were obtained. Another series, accompanied by samples of rock, illustrates the formation of soil by the disintegration and decomposition of rocks. For example, there is a specimen of dolerite rock and soil, formed from decomposed dolerite; granite and gneiss rocks and the soils formed from them. And so, also, with the rocks of other kinds and from other geological formations. Following these series are the marls, among which are some fine specimens of green sand and calcareous marls from New Jersey, and phosphate marls from South Carolina. The samples of phosphatic marls are taken from different depths beneath the surface, ranging from 3 to 56 feet. The next interesting features of this collection are the phosphatic rocks from South Carolina. In one case fine specimens are exhibited in a manner designed to strikingly illustrate the differences between the two kinds of phosphate of lime, known as river rock and land rock; and the fossil teeth and bones found in the different formations. The river rock is much darker than the land rock, and both kinds are found in irregular masses, varying in weight from that of the smaller specimens of one or two pounds to that of the large specimen found in another part of the collection, and weighing 1150 lbs.

Having disposed of the soils and fertilizers, we next come to the agricultural and horticultural products and material resulting from their utilization. Beginning with the cereals, there is, first, the manufacture of flour and meal from wheat, rye, corn, buck-

wheat, etc., illustrated by means of specimens taken from different stages of the process employed—from the raw grain to the finished product, and the waste materials resulting. The special products used for food and manufactured from cereals, such as wheaten grits, steam-cooked and dessicated wheat, barley and oats, oaten grits, oatmeal, etc. The further utilization of cereals is illustrated by samples of starch and gum. Among these are starch from wheat, corn and rice, and the gums made from them, and of value on account of their adhesive qualities. This portion of the collection is accompanied by models of machinery employed in the process of manufacture. The production of sugar is represented by specimens of cane sugar and molasses from New Orleans; beet root sugar from California; maple syrup and sugar from New England; models of concentrators, filters and dryers, and photographs showing the method of collecting and concentrating maple sap.

Another case contains a series of specimens illustrating the production of vegetable oils. In this branch of manufacture two methods are employed, that of expression and that of fractional distillation. By the first method, castor oil, linseed oil and cotton seed oil are obtained. They are represented by specimens of the seeds, the pomace, raw and refined oils, the cake from the press, and the cake ground for cattle food and for fertilizers. By the second method are obtained principally the essential oils employed for the manufacture of flavoring materials and perfumes. Of these essential oils there are eighteen manufactured from native products, a fact not generally known. All these essential oils are shown.

The next subject for study is the preservation of fruits and vegetables. The different methods employed for this purpose are hermetically sealing, desiccation, and packing in sugar and syrup. The first method consists of packing fresh fruits in glass and tin with exclusion of air, and is represented by specimens of canned goods from various sources. The second is illustrated by specimens dried by the processes of Alden and others, and the third by a series of fruits prepared by Gordon and Dilworth, of New York. In another section are the more valuable vegetable products of the American Materia Medica, with their active proximate principles separated in the crystalline form, the oil or the resin as the case may be. The products employed in and resulting from the manufacture of butter and cheese, occupy a portion of another case, and form an interesting and instructive series. They consist of milk, cream, butter, salt, rennet, curds, and different grades of cheese manufactured in New York and the New England states. The specimens of vegetable products are all arranged in the cases with reference to that stage of the process of manufacture from which they were taken, in such a manner as to illustrate clearly the changes through which the raw material must pass to render it fit for marketing and consumption.

The Natural History department and Economic Museum comprises, first, the science of entomology. This collection is made and classified rather for the purpose of denoting the injurious, beneficial and edible insects of the United States than as a complete scientific museum. The insects are arranged, therefore, according to the crop destroyed, and include the eggs, larva and perfect insect of the well-known potato bug (*Doryphora Dixilineata*), and all other insects deleterious to the potato are shown in the same way. Next are those affecting cotton, corn and all staple crops, and these are followed by insects affecting forest trees and those available for food. The latter are mostly of the grasshopper tribe, and their appearance is by no means tempting. Next in order are arranged the insects destroying household property and depredating on the larder. All the above are contained in twenty-four small cases, and in connection with this display are some 300 plates, illustrative of the principal injurious and beneficial insects of the United States, and the direction of their appetites, engraved on steel by Prof. Glover, the entomologist of the department. There are about 7,000 figures in these engravings, which are all colored true to nature.

A very large collection of birds follows, and has been made and classified with the same avowed object as the entomological specimens, viz.: To denote to the farmer and agriculturist the chief beneficial and injurious birds of this country. The qualities or grades are shown by the ends of the perches. If these are painted all white, then the bird is wholly beneficial; and the degrees of injury are shown by painting the ends of the perch a quarter, half or wholly black, as the case may be. Accompanying nearly every bird is a small box containing the contents of the stomachs, taken at different seasons of the year, to verify this fact. There is a most complete and well-arranged display of domestic poultry, chiefly of American origin. The pure breeds are shown true to name, so that the farmer may very easily distinguish their peculiar beauty and compare them with his own. Next are domesticated ducks, turkeys, guinea fows, etc., with some specimens of food ducks, and about thirty specimens exhibiting the crosses between the common domesticated duck and the wild mallards. The upper part of the case contains a few of the fancy breeds of pigeons.

The fruit display is very large, and, when closely studied, very interesting. There are about 3,000 specimens of apples cast in plaster from the fruit itself, to insure accuracy in size and shape, and painted in oil. Included are specimens of the famous "Gloria Mundi," weighing 20 ounces, placed for comparison side by side with the small Alaska apples, which are no larger than cherry stones, and in appearance resemble them closely. The apples are arranged—some of the same sort from each state—to show the various effects of climate and temperature. For instance, the "Baldwin" is smaller when grown in the New England states, yet that section is undoubtedly its true home, a point demonstrated by the fact that when planted in the west, it becomes larger, more spongy, subject to the bitter rot, and of poorer quality generally. Included in this section are pears, plums and collections of the principal vegetables, such as watermelons, beets, etc., arranged and classed in similar order.

In the grain section there are about 800 samples of American grain collected from every state in the Union and arranged in this order. The object of this collection is also to show the difference between the same varieties in distinct parts of the country. There are 125 samples of maize or Indian corn, amongst which are specimen ears, only three inches long, grown by Indians in Arizona, in comparison with which there is an ear from New York, measuring seventeen inches in length. In this collection are also about 100 samples of the manufactures from corn, wheat and other cereals.

In the direction of fibres there is a collection of

American wools, representing the principal varieties grown in this country, from the finest Merino fleece, about one inch long, to samples of the Cotswold, one foot in length. Below these are samples of the wool in every stage of manufacture, from raw material to Brussels and Wilton carpets, and shawls, stockings, etc. Next come the cottons, of which there are about 200 samples, illustrating the manufacture of that article. With these are arranged specimens of jute, flax and hemp, and a collection of miscellaneous fibres, many of which, collected in the West, are only interesting as showing the varied resources of our country. Adjoining the fibres is a very interesting collection of paper, showing it from the raw material through all its stages of manufacture, from straw, bogus manilla, scrap manilla and rope manilla to straw manilla, book colored, flat and American linen papers. Other samples of paper that have been experimented with are also shown, and to complete the collection is a specimen of paper made by wasps. It is really a nest, but from first to last it is made in the same way as we make our paper by machinery—another illustration of the truth that there is nothing new under the sun.

Under the head of microscopy there are about 400 frames containing illustrations of various fungi, including mushrooms, edible and poisonous, and fungous diseases of agricultural products, fruits, etc., and others destructive to plant life.

In the botanical section is a collection of American forest trees from all parts of the country, classified in the same way as the fruits, to show how the same trees thrive in different latitudes. The specimens are each about two feet long, arranged on low shelves in two lines. Above are frames containing pressed leaves and flora of each specimen below. In addition to these is a small stand of sub tropical trees of the United States, including the palmetto and others of the same class.

There is also a series of large maps, the first in five degrees of density, showing the value of farm lands in the United States; the second shows the respective rates of wages in the various states; the third map illustrates the wood lands of the United States, and the fourth indicates the distribution of the cultivation of cotton, flax, wool, hemp and silk throughout the entire extent of the country.

THE LIGHT-HOUSE SERVICE.

One of the first needs of a commercial country is to make traders to her coasts reasonably secure against disasters, by pointing out dangerous places along those coasts; hence the light-house service is generally as old as the government which establishes it. The Light-House Board is a part of the Treasury establishment, but its composition is of a mixed character. It consists of two officers of the navy, two officers of the engineer corps of the army, two civilians, and a secretary, who is also a naval officer. The exhibit is situated near the northern end of the building. The eye is at once attracted, in passing, by the beautiful display of lanterns, a large rotary one of the first class creating great curiosity in those unfamiliar with such subjects. The general shape of these lanterns is much like an exaggerated pine-apple, the lenses and prisms representing the scales. The uninformed observer usually turns away with the impression that these prisms are merely for the sake of ornament. On the contrary, their shape, their size and position have been determined by the best skill of the optician, and each individual triangular piece of glass performs its special duty of receiving and transmitting the rays of light from the lamp. To those unlearned in the science of optics, the following facts in relation to light may be of value in helping to understand the construction of these lanterns: Rays of light continually diverge or separate, so that the farther away one is from their source the fewer rays are received by the eye, and as the distance is increased the brilliancy is diminished until the light entirely fades from sight. It will be perceived, then, if the rays could be made to go in parallel lines, the light would be visible at any distance in the direct line of the rays, were there no intervening object. The purpose in the construction of these lamps is to send out parallel rays. This can be accomplished in two ways—by refraction, that is, changing their course through a glass lens or prism, and by reflection—a polished surface behind the lamp. This latter method has a familiar example in the locomotive head-light, which, with an ordinary-sized lamp, throws a flood of light along the line for a great distance. It will be noticed, also, that at either side of the straight track the light is feeble, the greater portion of the rays taking a straight course in front of the engine.

These pineapple-shaped lanterns utilize every ray of light from the lamp, both by reflecting and refracting them, and send them all out in straight, parallel lines. The central lens receives all the diverging rays which strike it, and sends them out like the round headlight of the locomotive. Arranged above and below it are triangular prisms, each of which receives its quota of rays, which it sends on the same route as those from the lens. All the rays, however, which strike a prism are not refracted—that is, do not pass through the glass; some of them are reflected from the surface, and these also are utilized, as they are sent off at such an angle from the glass that they take the same route as those which were refracted. The result of such a combination of rays is to make one vast beam of light, which can be seen at a great distance. Some of the lights on the Atlantic coast can be seen for twenty-eight miles.

The lanterns are divided into six classes, the class being determined by the distance of the lamp from the surrounding lenses. The farther these latter are from the lamp the larger they must be. First-class lights are those which are placed on the headlands running farthest out to sea. They are placed on high towers, and are the first lights seen by the mariner when he approaches a coast. These, of course, have the largest lamps. Second order lights are similar in construction, but on a smaller scale. The smaller lights than those first named are used in narrow seas or passages, on the courses of rivers, or at their outlets, where they empty into a bay or gulf. Many circumstances are to be taken into consideration in determining the character of a light at any given point; the conformation of the shore, the distance it is to be seen, its proximity to other lights, are all elements in the calculation.

Some lights are fixed, others are revolving or flash lights. The former class are intended to send a beam in a particular direction, or are in a cylindrical lamp, which shines equally well in all, though not with so great brilliancy. The revolving or flash lights are represented in the exhibition by the lanterns before described. It may have occurred to the reader that a vessel on first perceiving a light on approaching a coast, might, if not entirely certain of

her reckoning, be misled by it, thinking it to mark the entrance to a different harbor. The flash light makes a variety which perfectly indicates its locality to the mariner. As has been before described, the parallel beam of light is seen only in the line of its route; as the lantern revolves the direction of this beam is continually changed, so that the light, at one instant bright, in the next disappears, and is not again seen until the revolution brings the next set of lenses to bear upon the vessel. The length of time elapsing between these flashes affords a means of identifying the locality; thus some lights flash at intervals of 60 seconds, others at 30, and others at 10. The large lamp revolving in this exhibition will show a face quite as frequently as ten seconds. The lamp is made to revolve by clock-work, which runs by a weight suspended in the tower. The works require winding every four or five hours, and the watchman who falls asleep endangers the shipping in his vicinity; for by the stopping of these revolutions his flash light becomes a fixed light, or no light, and thus misleads the mariner. To guard against unfaithful watchmen a system of daily reports has been adopted, by which each light-keeper acts as a check upon his neighbors. The lights are so near each other on our coasts, that each keeper may see three or four, and should he fail to see all these lights, his report must show the hour of such failure. He cannot know the cause. Should his own light fail, he reports the cause, and the two reports will show the faithfulness of the keepers.

The lamps are of peculiar construction, and are the invention of Mr. Funck, who has charge of that special department. Those for the three largest sizes are what are called fountain lamps—that is, the reservoir is above the lamp, with which it connects by a tube. The burners are of the argand pattern, and are four in number, one within the other Lard oil is used in all the large lamps and mineral oil or petroleum in the smaller sizes. It has been found that a more intense light can be produced in a moderate-sized lamp with petroleum, but with the increased light there is also an increase of heat, and this volatilizes the mineral oil so rapidly that the supply of air is not sufficient to burn up the carbon, and the lenses are thus coated with it. The illuminating power of the different oils is tested by an instrument which is on exhibition, called a radiometer. Thus a certain oil is said to be eight-candle oil, equal to eight candles; and oil of this quality is generally used. A first-class lantern produces a light equal to 400 candles.

There are also floating lamps, which can be anchored over any dangerous shoal. On the western rivers, especially on the Mississippi, where the channel changes daily, the new channel must be marked daily. For this purpose a small lantern is hung upon a stake, and hence the name "stake light." Each day the keeper in charge of these lights sounds the channel and removes his stakes.

The Lighthouse Board have now in service 953 lights, as follows: First order, 46; second, 28; third, 67; fourth, 190; fifth, 125; sixth, 179; reflector lights, 38; stake lights, 280. There are also 53 fog signals. These latter are exhibited northwest of the building, near Belmont avenue. One consists of a large bell, tolled by clock-work; the other is a siren, or steam fog-horn, which, it is said, might be heard for a distance of 25 miles. This instrument is one of a class which Prof. Henry, of the Board and of the Smithsonian Institution, has labored long to perfect, and it is the most effective of its class. The steam is forced through two revolving discs, pierced with round holes. The discs are placed close together, and revolve in opposite directions. Steam passes only at the instant when two holes are opposite each other, and the current is thus continually interrupted, the rapidity of the interruptions giving its pitch to the far-sounding horn.

THE SIGNAL SERVICE BUREAU.

In the War Department the first section which claims notice, because of its operations being brought home to us daily, is the Signal Service Bureau. The principal part of this exhibit is a signal station, or weather observer's station, fully equipped, and in operation, with recording instruments, telegraph wires, a printing press, and a full corps of observers. One set of instruments will be in actual service, and other instruments will record changes in the weather which are wholly artificial, exaggerating their natural action so as to show the principle upon which they work.

This very important branch of the government service has been, to a very great extent, the creation of Gen. Albert J. Meyer, Chief Signal Officer, U. S. A., who is now familiarly known as "Old Probabilities," who, though he does not "regulate the weather," does regulate the carrying of umbrellas and overshoes. General Meyer was in command of the Signal Corps during the war, a corps which rendered very important service in communicating information across districts where it would have been impracticable for the U. S. Military Telegraph Corps to have run its wires. At the close of the war, however, there was little left for this corps to do, and the Telegraph Corps was abolished, having only a quasi military status; but Gen. Meyer was called upon to organize a system of daily weather reports, in connection with his Signal Service Corps. This his studies and tastes admirably fitted him for, and the work was begun.

Records had long been kept at all the military stations, and much of the ground work of a correct system had been already prepared. The Smithsonian Institution, too, had, with limited means and volunteer observers, developed the science of foretelling the weather and tracing the course of storms to a greater extent than any other organized effort had ever done. The weakness of all methods, however, had been in the fact that volunteer observers, though enthusiastic, could not be relied upon; for, to suit their own convenience, or through unintentional neglect, the observations were not made at the proper moment or were made by unskilled persons. Gen. Meyer started out with the principle that the observers should be not only qualified, but should be under strict military discipline. In this way only could reliable data be obtained. He therefore accepted none but enlisted men for observers, and these were first instructed in their duties before being put into service. Observing stations were established at all the important cities in the Union, and at every sea and lake port which was accessible by telegraph. Many other important seaports have since been reached by a coast line of telegraph, built for the purpose by this department. At these stations observations were made three times in the twenty-four hours, at intervals of eight hours, all being made at the same instant of time. The results of these observations are sent immediately by telegraph, by the operators connected with the signal office, to the

office of General Meyer, at Washington, and from these data skilled officers make up the "Probabilities" for each locality, which are so universally consulted by the readers of the morning papers before they venture over their thresholds. The predictions, and the reports from all the stations, are telegraphed to each station. The observers note, first, the state of the barometer; second, the state of the thermometer; third, the humidity of the atmosphere; fourth, the rainfall; fifth, the direction and velocity of the wind. For this purpose each office is provided with a barometer, a thermometer, a wet and dry bulb thermometer, a rain-guage, and an anemometer.

The display here made is intended to show a signal station with all these appliances, and with many others which are now in use, or being tested at the office of the Chief Signal Officer. The above-named instruments, as exhibited, are all self-registering, and make a record fuller and more accurate than any made by human observers. They are all of American invention, and are principally by gentlemen connected with this department of the service.

THE PATENT OFFICE.

The exhibit of the Patent Office embraces 5,000 of the most interesting models in the possession of the Patent Office, together with the publications of the office and a selected series of drawings and explanations of models. The models aggregate about three per cent. of all the models in the Patent Office, and have been classified under the following heads: Agriculture, harvesters, mills and presses, architecture, civil engineering, railways, navigation, metallurgy, metal working, wood working, steam hydraulics, pneumatics, mechanical movements, hoisting, horse powers, journals and bearings, vehicles, firearms, textile, printing and stationery, stone, clay, glass, leather, light, heat, electricity, household, chemistry, gas, ice and fine arts.

The publications embrace a handsomely-bound set of volumes containing copies of the Official Gazette, issued every week during the past five years; a General Index, containing a list of all patents issued from 1799 to 1873, numbering in all 160,000; and printed copies, handsomely bound, of the specifications and drawings of 69,000 patents. The General Index, a book of 1950 pages, was prepared by Mr. E. H. Knight, who has spent a great deal of time in selecting and thoroughly classifying the exhibits of the department. The publication of the Index alone cost $25,000; and the publication of the specifications and drawings in book form is also very expensive. These volumes are all handsomely bound, and are placed on the railing about the platform near the centre of the section which is used as an office by the representatives of the Patent Office. Among these publications is a copy in *fac simile* of the original printed register of patents issued in the earliest days of the government. In 1790 patents were first granted by the government, and from 1790 to 1836 the officer in charge of the granting of patents was called the Clerk of Patents, and had his office in the Department of State. Dr. William Thornton was the first Clerk of Patents, and was in office from 1803 to 1828. Previous to that time the office had not been recognized as a distinct office, and the work had been performed by one of the clerks of the Secretary of State. In 1821 the title Clerk of Patents was changed to that of Superintendent of Patents, which in 1836 was changed to Commissioner of Patents. The exhibit is designed to be a complete collection of all information bearing on the subject of the American system of issuing patents, and includes models of some of the most wonderful pieces of mechanism invented during the present century.

The Patent Office also exhibits an interesting collection of relics, which have been kept at the office in Washington, owing to the want of room in the National Museum, where they properly belong. It consists principally of articles of clothing, arms, furniture, etc., which belonged to Washington; but there are also relics of several of the best known of the Presidents. The Washington relics include the uniform worn by Washington when he resigned his commission at Annapolis; two tents, part of smaller sleeping tent and blankets, a bed curtain worked by Martha Washington, a traveling secretary, flint pistol, treasure chest, mess chest, (in one of the bottles of which still remains some catsup,) camp kit, articles of clothing, gold-headed cane, tea board imported by Washington from France; window curtains, mahogany table, portmanteau, hall lantern from Mount Vernon, two swords, a pair of vases presented to Washington by Mr. Vaughan, panels from Washington's carriage, knife case, punch bowl, a patent for a stove signed by Washington—one of the earliest signed by him—sets of china presented by the Society of the Cincinnati and by Lafayette, and several articles of furniture. The other relics are: Two muskets, presented to Jefferson by the Emperor of Morocco; the coat worn by General Jackson at the battle of New Orleans; the saddle used by Baron DeKalb, and a model of an invention by Abraham Lincoln for lifting vessels over shoals, patented May 22, 1849. The collection is arranged in upright cases, and all the articles are carefully labeled. It forms for the general mass of visitors one of the most attractive features of the exhibit, and is nearly always surrounded by interested groups.

THE POST-OFFICE DEPARTMENT.

The Centennial Post-office occupies a space of about fifty feet square in the southern portion of the building, and is enclosed by a handsome walnut partition. This office was really instituted for practical convenience, but it also serves to show the operation of the mail service for this country. The Department was opened for business in March last, and in its organization is subdivided into the distinct sections of general delivery, lock box, registered letter, and money order. There is also a window for the sale of stamps and stamped envelopes. In each of these the business is conducted on the same general principle as the main post-office in Philadelphia. The mail service at the Centennial office is much heavier than was anticipated, and an extensive business is transacted in foreign and domestic money orders and registered letters.

Among the postal exhibits shown, the most interesting is a delicately constructed machine which makes the Centennial envelopes. The flat piece of paper is placed in at one end, and is drawn through the intricate machinery, receiving the stamp, and being gummed and folded, passing out at the other end, a complete envelope, ready for use. As every twenty-fifth envelope passes into the tray awaiting its reception, the next envelope slips automatically a little out of the regular line, in order to mark the divisional number to be included in each package. So beautiful and regular is this piece of mechanism in its every movement, that it seems as if it were endowed with life and understanding, and, indeed, the

best mechanics could not make by hand envelopes with anything like its precision. The rapidity of work may be judged from the fact that, on an average, twenty-five thousand envelopes are made a day by this machine, without taxing its capacity in the least.

There may be seen in this vicinity, in handsome frames, fine specimens of all the different varieties of stamps, stamped envelopes, mail bags, topographical maps of the various post-routes, and all the principal blanks, bound in book form, used by the department. Other interesting exhibits are Franklin's old ledger account when he was postmaster, and a model showing the patent mail-catcher used in the fast mail trains, which pick up the letter bags at the stations, while the train is running at full speed.

PRESIDENT STANTON'S ADDRESS.

WE have just received copies of the report of the Board of Education of the city of Philadelphia. In addition to its valuable statistics and other information, Hon. M. Hall Stanton, President of the Board, has enriched it with an address treating mainly, as was proper in this centennial year, of the history of our public school system, both in the city and state. This historical portion of the address we present in full below. It will be read with interest all over the state. In explanation it should be remarked, however, that Mr. Stanton does not attempt to present a full history of the subject on which he writes. His narrative is confined mainly to what Philadelphia and Philadelphians did in the work of establishing our system of public instruction. He has done no one honor overmuch, but he has omitted many names outside of Philadelphia whose services to the cause in its early struggles deserve recognition and gratitude.

Instruction in Philadelphia prior to the organization of the department which, now upon a broader and more generous plan than it originally was, is administered by this Board, was mainly under the control of various religious societies; and though the first and second Constitutions made it obligatory upon the state to afford facilities for education to her youth, it appears that up to the year 1809 no measures were adopted to carry out their spirit and intention. In the frame of government prepared by William Penn in 1682, before he had yet set eyes upon his new province in the western world, he inserted a provision "that the Governor and Provincial Council should erect and order all public schools, and reward the authors of useful sciences and laudable inventions;" but I am unable to find that they exercised the authority vested in them for many years after not only the state but the city had been substantially established. In 1683 the first English school was opened by Enoch Flower, on the same general basis as to admission that all private schools are now founded upon. In 1689, the Friends—who ever since the establishment of the city have been foremost in all good works—instituted a "public school," which was incorporated in 1697, and confirmed by Penn in 1701; but by the terms of its patent, it was "founded in Philadelphia at the request, costs and charges of the people called Quakers." In the essential fact that it was not supported by the entire community, free to all, and for the common good of all, the term "public school," as now interpreted, could not be applied to it. It is notable, however, that this excellent institution, established nearly two centuries ago, is still in full and vigorous existence, and is open to pupils of both sexes and of every class and condition of life, irrespective of religious creed—a liberality characteristic of all the movements of that useful and influential body of society whom we know as Friends. Dr. Franklin was conspicuous in his labors to disseminate knowledge, and succeeded in founding, in 1750, a flourishing school for the instruction of indigent young men, in addition to his zealous efforts towards promoting literary, scientific and charitable institutions, which remain to-day not merely the landmarks of a past age, but monuments to his genius and philanthropy, and the substantial evidences of our progress towards a higher civilization.

By the Constitution of Pennsylvania, adopted on September 28, 1776, it was provided in the forty-fourth section—"A school shall be established in each county by the Legislature, for the convenient instruction of youth, with such salaries to the masters, paid by the public, as may enable them to instruct youth at low prices." This article, while it tended to belittle the importance of education, contemplated a general school-system with none of the discrimination against the poor, who, under the operation of subsequent laws, became the unfortunates of class distinction. The Constitution of 1790 declared, in its seventh section—"The Legislature shall, as conveniently may be, provide by law for the establishment of schools throughout the state, in such manner that the *poor* may be taught gratis." It appears that the authority of the Constitution of 1776 was actually evil in effect, and as far as research will demonstrate, no practical steps were taken to carry out its wise and liberal intentions. For many years the law of 1790 lay dormant; more from the reason of the contention to which it gave rise than from any other cause. It was designed as a pure beneficence to the poor, and not upon the broad social principle, which now is recognized as just and equitable in this country, that as the best services of all her children are due to the state, so it is the duty of the state to all her children to fully develop their talents, which may at any moment be called into her service. On April 4, 1809, an act was passed by the Legislature to provide for the education of the poor gratis, it being required that a list of all the children between the ages of five and twelve, "whose parents were unable to pay for their schooling," should be made out, and, when completed, such parents were to be notified that they were at liberty to send their children to the most convenient school "free of expense." It was further stipulated that the names of no children whose education was otherwise provided for should be received by the assessors, and that proper compensation should be paid the teacher of each poor child out of the public treasury. "It was," says a recent writer, "almost a literal compliance with the Constitution, and yet it failed essentially to benefit those on whose behalf it had been framed." The rich objected to being taxed to support the poor, and the poor, keenly

sensitive to the reproach of pauperism, which by legal enactment was fixed upon them, were unwilling to accept the charity. When it was patent to every one that the law of 1809 was inapplicable, a supplement was added that the commissioners of Philadelphia county should establish public schools, under the approval of councils and the commissioners of the several districts, and under this system two thousand children were taught in 1816 at an expense of twenty-three thousand dollars. A continuance of this scheme, which did not reach the children of all classes, which was faulty in character and in administration, and which was by no means economical when the elementary character of its instruction is considered, failed entirely of popular endorsement. A society for the "Promotion of Public Economy," of which Roberts Vaux, a man of great force of character, liberal opinions and comprehensive learning, who subsequently became the first president of the Board of Controllers of Public Schools, was chairman, had for some time been agitating the expediency of securing a system which should be thoroughly devoid of class distinction—an absolute requisite for success—and which should maintain a needed uniformity of free instruction in the public schools of the city. The efforts of this society, seconded by the ablest citizens of Philadelphia and the state at large, resulted in the passage of the act of March 3, 1818, which forms the foundation of the plan of public education now under our control.

This act provided for the education of children at public expense, and was in spirit, though its enemies wilfully misconstrued it in that direction, without any intention of continuing class distinction. It erected the city and county of Philadelphia into a district, to be denominated the First School District of Pennsylvania, each district of the city (which at that time was divided into districts instead of wards), to be denominated a section. Councils were empowered to appoint sectional directors, and they were required to appoint controllers, one from each section, to be called the Board of School Controllers. Under this authority the first Board of the present system organized on April 6, 1818, to establish schools, free alike to poor and rich, and it appears from its report of the year 1818–19 that 2,945 pupils were taught at a saving of nearly five dollars per capita over the former system of public instruction. In speaking of this evidence of the value of the new department, Mr. Vaux said: "Whilst, however, economy of expense is an interesting characteristic of the system now under successful operation, it is by no means the most prominent feature which recommends a great and liberal plan of public instruction to the support and affections of a discerning pupil. These results which the temperate calculations of enlightened reason may expect from a scheme of education, resting upon the sure basis of Christian benevolence, and administered with due regard to political equality, are truly grand and imposing. The effect of such a system must elevate the intellectual and moral condition of our youth, and consequently fortify their minds against the assaults which evil never fails to make upon virtue. If, therefore, by a judicious employment of the means afforded, the rising generation are prepared to enter upon a career of life with all the advantages which certainly accompany the possession of practical learning; if their susceptible minds are early imbued with sound moral principles, and they are taught to form a just estimate of the obligations which they owe to themselves, as well as to comprehend the social duties which should be performed by all for the general and permanent good of the community, we may confidently look for that ameliorated state of society which attempts at reformation, not in themselves radical, have hitherto failed to produce."

Let me call your attention to the fact, however, that although this act of 1818 established *free* schools, and though Philadelphia had, in these early days, become renowned, from her many seminaries, colleges, and universities, as a grand seat of learning, there was no place in the city, or in the state, up to the year 1834, where the children of poor parents might seek a gratuitous education without the feeling that they rested under the stigma of pauperism. The law of 1818 applied to Philadelphia only, and it seemed at that period an almost impossible achievement to destroy the prejudices against it by a very large portion of the community, who narrowly regarded the plan as one designed for the poor alone, and who placed it in the same category as the law of 1809, which was still in force in other portions of the state. While it was a difficult work to win the confidence of the entire community, the benefits of the scheme brought to the aid of the Board the ablest men of Philadelphia, who, upon a careful canvas of the situation, concluded that the entire state should be brought under the operation of the free common school law, and that the general application of such a liberal enactment to all sections, would tend in a very great measure to disarm the enemies of the system in Philadelphia of their prejudices, and to secure instead their sympathy and support. These enlightened efforts culminated in 1834 in the passage of the first Common School Law of Pennsylvania. Opposition to its provisions was soon aroused in consequence of its unnecessary machinery and other faults, and an attempt was made to repeal it and return to the old pauper system, an attempt which had succeeded in the legislative session of 1834–35, but for the great effort made in defense of it by Hon. Thaddeus Stevens, then a member of the legislature. In 1835–36 a new school law more complete in its provisions and more easily understood than the old, was perfected and passed, not without a fierce contest in both houses. This was known as the school law of 1836, and was not very materially changed till the adoption of the county superintendency, in 1854.

The grand achievement of 1834 was mainly effected by an association in this city known as the Pennsylvania Society for Promoting Public Schools, which established branches in other parts of the state for the express purpose of concentrating the labors of the friends of free common school education, and finally triumphed where individual and sectional effort had hitherto failed. Up to the year 1818, when the Philadelphia system was founded, all educational enactments by the Legislature operated partially against instead of in favor of the poor. They established a discrimination in opposition to the most sensitive and the strongest moral feelings of the enlightened public. A very large class of citizens would not enroll themselves as paupers, in order that their children might obtain a free education, with that pride of independence which seems to reject even the greatest blessings which man can bestow when the proffered boon is offered in the humiliating form of public charity. In this lay the failure of well-meant legislative and constitutional provisions, and the slow progress of our system in this city until 1834, when the state enacted its broad and generous law for free

common school education—the first liberal and general measure adopted since the founding of the Commonwealth of Penn, in 1682, a period of a century and a half. The successful establishment of this flourishing department is due to the persistent and intelligent efforts of such men as Roberts Vaux, John Sergeant, John Wurtz, George W. Smith, the late Hon. George M. Stroud, Matthew Carey, Jacob Lex, Ellis H. Yarnall, and of Alderman Peter Hay, and Hon. Joseph H. Chandler, who still live to witness its triumphs. I have thought it best to speak thus of the establishment of the general state system, because it was virtually born out of that instituted in Philadelphia in 1818, and because, furthermore, it accomplished greater benefits than that of bringing the other districts of the state under its much-needed control. It stimulated the cause of general education in this city, and erased the reproach that the schools were founded for the poor alone, for, whereas, in 1830, prior to the enactment of the General Law, we find only 5,371 children attending, out of a population of 188,961, or about three per cent. of the whole; in 1840, after the passage of the law, when prejudices were softened and false pride dethroned, 23,192 pupils attended out of a population of 258,037, or about nine per cent. of the whole; and from that time to this the ratio of progress in school attendance to local population, has been steadily increasing.

It was early discovered that the complete scope of the common system and its highest fruition, demanded the gradation of the schools, without which it would never be complete and fully effective. Being expressly designed to supersede the pauper schools, it was seen that if they, under a free system, afforded to all who entered them only the same scanty degree of knowledge which was imparted in the former, the distinctive badge of pauperism would be removed from the persons of the few to the minds of the many. Immediately, therefore, when the adoption of the General Law gave a direct impetus to the system in this city, the controllers wisely set about adding those features which should make its method of instruction progressive. In 1836, primary schools were established, and in 1838 the Central High School was opened, the main end sought in its institution being the elevation of the whole system with which it was connected. In 1840 the first steps were taken for the erection of a Girls' High School, in connection with a Normal School, an institution which to day stands as one of the crowning features of this department. The present system, which divides our school into grades of primary, secondary, grammar, and high, is not only uniform and harmonious, but thoroughly progressive. It is worthy of note that New York, Boston, and the other leading cities of the nation, adopted essentially the same grades which Philadelphia was the first to establish in any common school system in America.

Let me quote from the report of the Controllers for the year 1842, after many of these reforms were effected: "In justice to their sense of the importance of the school system," they say, "the Board cannot close their report without referring to its progress and prospects. At the expiration of the first year, after the passage of the law of 1818, about three thousand children were in the schools, and now there are nearly twenty-eight thousand under instruction. The system had to contend against the old free school system which made the unfortunate poor citizens a distinct class, separating them from their fellow citizens in their means and opportunities for education. Now the schools are really public. They are open to all citizens upon a free footing. No distinction but that of merit is recognized among the children, and education from the lowest grade of the infant to the highest for the youthful citizen is put within the reach of all."

INTERNATIONAL EXHIBITIONS.

THEIR EDUCATIONAL INFLUENCE.

THE following lecture was recently delivered in Philadelphia by Prof. Thos. C. Archer, English Commissioner to the Centennial Exposition. It is generally admitted that no man living is more competent to speak upon the subject here treated.

My object in this lecture is to bring before you in as succinct a manner as possible, the history of the rise and progress of international exhibitions, and to convey to you, as well as I possibly can, my own impressions of the advantages which these exhibitions confer upon civilization. I have a strong faith in them myself; I have always had. I have worked earnestly in them, I have seen their defects, and I have seen their benefits also largely developed, and still being developed. T ese exhibitions are institutions of the time, to my mind, and you are gradually awakening to that idea; you have begun your career in that direction in Philadelphia, with an institution which may not end for a thousand years to come.

The first of these international exhibitions was originated in 1850, by one of the best men the world has ever known, a man who had the interests of his fellow-man at heart as warmly as any man could have, the Prince Consort of England. It occurred to him, and he suggested the thought to others, that we should have an exhibition of a different character, one in which one nation should vie with another, not simply one individual citizen of a city or district with other natives of the district, but that it should be universal, that we should compare notes with other countries; and the consequence was that the original idea of an international exhibition was started. It was carried out in the most admirable manner—admirable because the Prince had in the first place the wisdom to see that the idea in itself was a good one; and, in the second place, the possibility of finding men about him capable of carrying out the idea most thoroughly, and of working it up to its ultimate success. The staff then organized was composed of as intelligent men as ever met together for such a purpose.

As a rule, the lesson then taught has been followed up, and each nation has taken the greatest possible care that the administrative staff should be composed of great and good men, and no nation has been more careful than this; so that those who are directing the international exhibition here, after close study of the results of other exhibitions, are fully prepared to carry out all the hopes and aspirations of those who believe that these exhibitions are a great boon to civilization.

The immediate influence of the exhibition at London in 1851 was very remarkable. Previous to that, Englishmen had the obstinate idea that one Englishman was equal to five Frenchmen, and three of any other foreigners, not merely in muscular strength, of which they had not the slightest doubt, but in intellectual attainments, and everything which made one

man better than another. Never was a nation more completely subdued than the English by that exhibition; they learned for the first time that there were some things in which others were better than themselves, and some things in which they were better; and the knowledge one gets of one's self in this way, learning his weaknesses and his strength, his excellencies and deficiencies, giving and taking, imparting to others wherein he excels, and receiving from them that in which he is deficient—this knowledge is really the best, and gaining it was one of the best things that the Exhibition of 1851 did for us. Our art tastes were degraded in every way, but we stuck by them. We built buildings that were a disgrace, we made pictures not now worth looking at, we made pottery which our ploughmen would not now use, and we went on with the idea that no one could beat us. The Prince knew better; he had a universal feeling, a feeling for art that was neither English nor German, the true art feeling. He felt that very much was to be done to bring the people together to study art principles in schools in the French manner. The result was extraordinary. Previous to that time, our art schools were very badly attended. In 1851 we might have counted them on our fingers. Out of that exhibition sprung very numerous schools of design, the art tastes were cultivated, and institutions were opened up all over Great Britain for the purpose of teaching a scientific knowledge of our manufactures, and the theory of the æsthetic knowledge of the arts. Then sprang up the Sonth Kensington Museum. I see before me one or two gentlemen who are admirable judges, and they will give it the fullest endorsement, that it is at present one of the first in the world.

That is one of the results of our holding an exhibition when our art tastes were as degraded as they could be, and a low grade of knowledge prevailed. We have learned the opposite lesson; we have attained to a means of improvement which will go on forever. The South Kensington Museum and its affiliated institutions are completely revolutionizing the whole tastes of the country, and in such a manner as would surprise you. We have at present between eight and nine thousand schools or classes of art, at almost a nominal cost. The system is this: Wherever twelve gentlemen will meet together and petition the Science and Art Department to establish within their precincts an art or science school, engaging that there shall be a certain number of pupils, one is started. This has gone on to such an extent that it is a very profitable thing for the teachers to get together pupils in this way. They make handsome incomes, and the government reduces its capitation fee as the pupils increase and have to pay. Thus the charge on the state per head is becoming less and less, while the number of classes is going on increasing. This is one of the first and grandest results that came from the great exhibition of 1851.

Then there was another good and useful feeling originated by that exhibition. That was, the manufacturers of Europe obtained the idea that they derived a benefit from these exhibitions; that they were the best possible means of advertising, people being enabled to compare one thing with another, and ascertain which was good and which was bad, and learn to fix their choice in the right direction. It has invariably been the practice prior to each of these exhibitions to run them down—the manufacturers were reluctant to incur the cost of competition; but when one comes in others come in, and in the end all show their confidence and appreciation of the value of these exhibitions. The exhibition of 1851 has been followed up by a much larger series of exhibitions than is generally imagined by those paying no attention to the subject. There were two held in Ireland—one in Cork, the other in Dublin. Then, in 1855, an exhibition was held in Paris.

We had also an exhibition in Manchester—of art purely. This was confined to pictures, sculpture, engraving, graphic art generally, and decorative art. That was made up almost entirely of loaned collections, which completely changed the tastes of the people in that neighborhood. The first argument offered against it was: What is the use of bringing to a neighborhood like Manchester, composed of manufacturing people, such a collection as the Hertford and other choice collections? I went there as a reporter over forty times. My chief amusement was to listen to the people, and I found that I obtained more information by listening to these mill-people than by any observations of my own. It taught me a lesson—that those who put their own opinions up as far better than their humbler neighbors are often mistaken. Nothing ever did more good for such a neighborhood than that exhibition in Manchester.

Two exhibitions were held in Holland, the one quickly after the other. They were purely of an industrial character, and were conducted in a very admirable manner; the one in Amsterdam, in a building specially erected for it, and the other one in Haarlem, in a building hastily adapted for the purpose. Their success was extraordinary, and forced upon the Dutch people the conviction that such exhibitions are aids to trade and manufactures. The fruits produced then have been a most thorough attendance upon exhibitions, and very great practical benefits reaped from them. About the same time many others were being held in Florence, Naples, Brussels, Rome, Havre, etc.

In 1862 it was determined to have another exhibition in London, but previously that of 1855 was held in Paris on a very large scale. I had not so much opportunity of going into the history of that exhibition, though I attended it throughout; for, like all strangers, I became attracted by the amusements of Paris—these exhibitions for such reasons do the natives more good than strangers. In 1862 our second exhibition was held in London, although there was very great fear, indeed, that it would not prove a success; and this is always one of the first features when an exhibition is talked of—it is prophesied that it will be a failure, that it is one too many, and such croakings. It did, however, prove a very great success. So thoroughly imbued were many with the exhibition idea, that it was thought desirable that, instead of being held once in ten or twelve years, one should be held every year, and this led, in 1871, to the plan of the Annual International Exhibitions, which, as I shall tell you afterwards, was not so successful. In 1862 we had what we had not in 1861; we had fine art as a very important feature, and the picture gallery of 1862 was perhaps one of the finest in the world—admirable in its construction, admirable from the comfort it gave to the spectator, and admirable also for the works shown in it, though in that respect not more remarkable than the average of our exhibitions usually. The exhibition of 1862 gave a great stimulus to the rest of the world, and forced the idea still further that these general exhibitions must go on.

In 1866 an exhibition was held at Stockholm, in Sweden, which was very beautiful. It was got up with the idea of exhibiting only local productions; but it was extended to all Scandinavian productions, and Norway, Sweden and Denmark participated, and there were a few representations from other countries. The arrangement now is, that every third year there shall be an exhibition in one of the Scandinavian capitals. In 1872 the second one was held in Copenhagen, and it was a most admirable success. It is due to these small exhibitions that you have so many countries now coming forward to yours. For instance, Norway and Sweden—what can be more elegant than the arrangements they are making? There is taste, organization, and thorough knowledge of exhibition work. This arises from the fact that they have held exhibitions themselves, which have been successful in advancing their comfort, their commerce, and their general happiness as a people.

In the great Paris Exhibition of 1867 there was a widening of the exhibition idea altogether, the idea of representing nationalities. Every nation wanted to be separately recognized there, and the grounds were consequently immensely extended; and they had arrangements for showing the national houses and restaurants, the national modes of living and costumes, and it was one of its chief and most agreeable features. This was carried out still further at the Vienna Exhibition, and will have even a wider range at that here inaugurated.

The exhibition held in 1872 did not attract much attention either in Europe or America. It was held in one of the most picturesque spots upon the globe, the last, indeed, where it would have been expected to have a great exhibition, the exhibition of Moscow. This was the first effort at a scientifically organized exhibition, and I am sorry to say it was the last. I hope it will not long remain the last, but that the principles upon which it was inaugurated will be those upon which exhibitions in future will be carried on everywhere. The effort was to have a philosophical arrangement of all the articles exhibited, every class being grouped within a space commensurate with its requirements. The exhibition was held in the Alexander Garden, and it covered two miles of space. It ought to have attracted the greatest possible notice all over Europe, if not from more distant countries, but it was very little visited except by the natives of Russia. But it was the most teaching exhibition that has ever yet been held. No human being could walk through any one of its classes without coming away much cleverer than he went there, simply because the organization and the arrangement were so wonderful that you could pick up knowledge and information without knowing it. Just, for instance, as in your United States government building you show your postal service, with all its appliances, they had a postal department where you saw not only what they were doing in Russia to bring their postal system to perfection, but in every country in the world. For instance, there was a long avenue of postmen—of course, dummies—each one arrayed in the costume of his respective country; there was an album containing the postage stamps of every country, a library composed of books containing forms for every purpose connected with postal administration, and a long line of carriages used for carrying out postal arrangements—everything from the rude sledge of the wild Kamtschatkan to the formal yellow-painted van of the German States, where they like yellow better than anything else. There was also every form of telegraphic apparatus, and telegraph office, so that you could write or telegraph to any part of the world.

Then in the medical department there was a hospital such as is used in their large cities, furnished with every appliance which might be required for accidents at any moment; in the dispensing department all the proper pharmaceutical arrangements, and outside a garden in which every medicinal herb was growing that could be used in this department.

In their States Department corresponding to your United States Department, their navy was illustrated by a man-of-war put up in sections on land. There was every kind of fitting for the saloon cabins and for the men, every kind of appliance for shipboard life; the rigging was shown, the sections taken, showing the masts standing and the other parts left out; the sails were flapping in the wind, and you saw how they were made. The flax was brought in, spun into yarns, and woven into sails, the ammunition was made upon the spot, and the very cannon were bored while you were looking on. It was, in short, a polytechnic display the most perfect the world has ever seen.

I mentioned to you that the Copenhagen exhibition which was held the same year as the Moscow one, was not a large one; it was chiefly for the display of Scandinavian products. The exhibits of porcelain were exceedingly fine, and they pointed out to me what an immense influence the other exhibitions had in stimulating this beautiful art, and bringing it to such perfection as I there found it. It had broken down the Royal monopoly of making porcelain in Copenhagen, showing that it did not meet the wants of the people, and that private enterprise had brought out manufacturers who were surpassing the Royal Works. The following year the Royal Works broke down completely, not a bad result of the exhibition.

The Vienna Exhibition, in 1873, was so much wider in its aims that it deserves especial mention. Its development of the national idea was much in excess of all the demands, and the stimulus given to the various nationalities of the Empire to do something, although too poor to do much, caused so great a strain that that exhibition cannot be considered a very great success. Still I am convinced that seeds were sown upon that occasion which will produce good fruit for Austria. I know personally that at this time many trades which were in a dilapidated condition when the exhibition opened, are thriving now. This is a small result for the immense exhibition of Vienna, but it is only owing to peculiar circumstances that no better results followed. I am firmly convinced, however, that the time will come when the seeds then sown will produce great results. It has given them the feeling that they can hold their own with the rest of the world in a variety of ways. They have opened their country to the outside world in a larger measure than was thought of before, and this has given an international feeling and has been productive of growth; they have let in intercourse with the world, which has brought in many wholesome influences, and must conduce to their benefit.

It was hoped that the annual international exhibition in London would be permanent. It was thought that breaking up these exhibitions into annual sections, representing only a certain class of articles each year, was better than to put forth the entire efforts every ten years. The idea was a good one, but the administration was bad, and they of course failed. It could not be carried out without great and constant energy, and that could not be sustained year after

year. Besides, we in England have people who like to get a good job. You have some in America, but you haven't them all. The international exhibitions became comfortable berths to a great many people, who preferred them to the exhibitions. Of course, the exhibitions failed. The principle was good, but was badly carried out. The idea was not an original one, but was copied from the French triennial exhibitions held during the First Empire, and again copied in France in the small exhibitions held every four years in Paris, known as the Concourse Centrale. These are admirable in every way, and are the most useful and beautiful that have ever been held. They are regulated with great care, not by an official bureau, but by the manufacturers and producers themselves, who form a committee among themselves of various tastes and sound judgment. A man must be well known and a sound man to get on this committee. Nothing gets in without running the gauntlet of the whole committee, and very little that is indifferent obtains admission. The people in France thus have an opportunity of seeing in a moderate exhibition the best efforts of art and manufacture in their country. It is a great æsthetic lesson for the people themselves. They learn what art can produce, they desire to have it, and every person connected with it is benefited.

The next great effort was by the proposal to hold an exhibition here. You know quite well that it was not at first very warmly received in Europe. I told you before that every exhibition since the first has always been met with the greatest difficulties. People always prophesy failure. The busy man says: "Oh, bother, here is another exhibition," and the poor hate them, fearing they will be at a disadvantage with the rich. But the difficulties always give way. They have done so at least hitherto. We have just begun exhibitions, and shall go on with them to the end of time. No sooner was the mind of Great Britain convinced that you were serious in your intention of holding a great exhibition, than they came forward in my country with a thorough earnestness of purpose and a determination to do their best, and the strong conviction that you were doing the right thing too in taking your share of the great benefits which we are sure do arise from these exhibitions. We have come forward in this matter—and I speak now not as an Englishman, but as an European—with a determination to aid in carrying this out to a complete success. If it does not teach you valuable lessons—but I am sure it will, for you have the same feelings—your efforts will be sadly wasted. We, on our side, shall carry back to the Old World many lessons you have taught us which we shall never forget. We have seen that wonderful adaptability to meet the difficulties of nature in your vast country which we do not know in our little home. You have shown how you can adapt yourselves to the altered circumstances, and it is impossible not to notice how you have grappled with these, without respecting the talents which have enabled you to do it. You show us by what you have done that there is much for us to take into consideration; a knowledge of the soil, the temperature, and many other things of which at a distance we know nothing, and which must have a powerful effect upon the dispositions of those who are in contact with them. You have taught us that, under the most adverse circumstances, you have made the best of them; but more than that, we are taught that here we meet with our own kith and kin, that our own blood is in your veins, and it is our own fault if you are in opposition to us. We come here, and we find not the typical Yankee, the counterpart of Cook's tourist, but men with the same love of culture and of right which we are accustomed to find in our best circles, the same genial feelings in all classes, the same warm sentiments. I am sure that I and my countrymen will leave with these feelings most warmly impressed upon our minds. We shall leave with an admiration of your exhibition, an intense admiration of those who have brought it to a successful end, and with a warm feeling for the hearty welcome which has been extended to us all.

LANCASTER, THE EDUCATOR.

BY ONE OF HIS PUPILS.

[We find the following sketch in the *Phrenological Journal;* it will be especially interesting in Pennsylvania where Mr. Lancaster labored for some years establishing schools at Lancaster and elsewhere.—*Ed.*]

IT has been the happy privilege of but few sterling champions of education to serve their day and generation more unselfishly and usefully than the subject of this brief sketch, which is gratefully offered as a very feeble tribute to the memory of departed worth by one of his surviving pupils.

Joseph Lancaster was born in London in 1778. He was an honored member of the Society of Friends, and in early youth developed a remarkable fondness for literature. His gentle qualities of character and zealous devotion to duty rendered him a universal favorite. Animated by an earnest desire to have the lowly reap the benefits of education, in his nineteenth year he conceived and practically carried into execution the noble purpose of his benevolent heart by organizing a free school for poor children in the Borrough Road, Southwark, where his worthy father then resided, and who, to encourage his generous son in this truly commendable and humane enterprise, set apart a large room in his dwelling for the first tutorial labors, Joseph furnishing the desks, benches, and charts out of his own limited means. In an incredibly short time there were nearly ninety children in attendance, and it was in this humble apartment that young Lancaster initiated his famous and popular "Monitorial System," which was nothing more nor less than a prelude to the present public school system.

The brilliant success of his useful labors was recognized by the friends of popular education, and they rallied around him with a devotion that impelled the young benefactor to work with renewed energy. Among these friends was the renowned Dr. Bell, who had

about this time (1797) published a work upon popular education. The Duke of Bedford was led to inquire into the merits of young Lancaster's plan, and the result was that in 1805 Lancaster was invited to an audience with George III, who, during a long interview, highly complimented his guest for his manly effort, and encouraged him to give his views without reserve. Lancaster, improving the golden opportunity, intimated that there was probably no other period of the school life in which a careful study of the individual characteristics and attention to the individual needs of a pupil are so imperative as in the early years, while the mind was tenderly impressible—and yet no other period received less attention in these and other respects that effect vitally the whole future of the child's life. His Majesty was so favorably impressed with the philosophic views of his visitor upon the subject of popular education, that he gave utterance to a sentiment which rendered him thereafter very popular with his subjects. "That it was his earnest desire to see every child in his dominions educated to read the Bible." About this time the "British and Foreign School Society" was established, and the names of Bell and Lancaster soon acquired a European reputation. Foreign governments, including the United States, made diligent inquiry into the character and merits of the "Lancasterian System," and either with or without modifications it was widely adopted. Lancaster being a Quaker, labored as such under many disadvantages on account of the unmerited prejudice prevailing against that worthy and philanthropic sect. Nevertheless, he became the apostle of his method, and for several years traveled through England, Ireland, Wales, and Scotland, expounding it in lectures and promoting its application practically by establishing schools among the poor and needy, till finally the "well-to-do" adopted the plan, and its introduction became general. He even endeavored to apply his method to the education of the higher or aristocratic classes, but failed in the attempt through the silly prejudices of the so-called refined and cultivated. Such was the unbounded liberality and self sacrificing spirit of Joseph Lancaster, that after working fifteen years for the public he became insolvent (1812). Six years after this he emigrated to the United States, where he nobly prosecuted his useful labors. In 1829 he went to Canada, and labored there also with approbation and success.

It was early in childhood that I was a pupil of this good man, the recollection of whose many virtues is still blooming fresh in my memory, and which, I hope, will go with me to the grave—knowing, as I do, that it is always profitable to cherish the memory of the virtuous. Oh! well do I remember, though it has been a "long time ago," the benevolent face beaming down, replete with sweet affection, upon the "little tackers" who always loved to see the happy owner enter the school-house. But how many of this little band are spared in this Centennial to look once more upon [gray,

> The school's lone porch, with reverend mosses
> That tell the pensive pilgrim where it lay?
> Mute is the bell that rung at peep of dawn
> Quickening my truant feet across the lawn;
> Unheard the shout that rent the noontide air,
> When the slow dial gave a pause to care.
> Up springs at every step to claim a tear,
> Some little friendship form'd and cherished here;
> And not the lightest leaf, but trembling, teems
> With golden visions and romantic dreams.

In 1830 Joseph Lancaster was invited by General Simon Bolivar, President of the Republic of Columbia, to introduce his system of education into that country, but before the preliminaries were arranged, General Bolivar died. This was a sad disappointment to our friend. Mr. Lancaster was the author of the work entitled, "The British System of Education," "Lancaster's Arithmetic," and an "Autobiography." He died, universally lamented, in New York in 1838, at the age of sixty years. *A. Hawkins.*

TWO SUGGESTIONS.

ONE TO TEACHERS, THE OTHER TO BOARDS OF CONTROL AND SCHOLARS.

THE year 1876, as everybody knows, is the hundredth anniversary of the existence of the American nation, and there is everywhere over the country, as a consequence, a greater or less display of real or sham devotion to the cause of national development. In this connection we would suggest to our teachers and school directors, as well at to the pupils under their charge, a means of commemorating the centennial year, which, though it will bring no pecuniary profit to them, will yet, if carried into execution, be a valuable means to utilitarian as well as æsthetic ends—two objects which cannot always be so readily combined. The suggestion is this: Let every school board unite with the teachers and pupils of the district in planting carefully, under advice

from some practical arboriculturist—one who would blunder neither in selecting the time nor the means necessary for the attainment of the end in view—from two to half-a dozen American elms, (*Ulmus Americana*) the most magnificent of our native forest trees. Care should be taken not to mistake the so-called "slippery elm" for the one we have recommended. The *Ulmus Americana* is of very slow growth, which is with many an objection to it; but if our suggestion is carried into execution generally, these elms will, on the recurrence of the second centennial anniversary, be the chief attraction of all the school grounds in the commonwealth, and will serve to prove to our successors that we were possessed of sufficient public spirit to labor for the good of those who were to live and move and have their being a hundred years after we were mouldered into dust. The number of elms planted would have to be regulated by the extent of the school grounds, but there should never be less than two. These elms would be known for generations as "The Centennial Elms." A group of wildings, or American crab-trees, might be added, care being taken to plant both these and the elms far enough apart to allow amply for future expansion—a very necessary precaution. The wildings would, in a very few years, be the delight of the school through the exquisite beauty and fragrance of the blossoms. Of course there should be that high tone in the school which would protect the trees from all injury and despoiling of blossoms.

The remaining suggestion is directed more exclusively to the teachers, though others might, we think, profit by it. It will be utterly impossible for any one except those who have a very generous allowance of time and means to see adequately the half of the display in the grounds in Philadelphia. We think that all but these exceptionally fortunate persons, after a general visit to buildings and grounds, will act wisely by confining themselves, for the most part, to a very few of the departments, and we would beg leave to recommend especially the Art Gallery, the Floral Exhibition, and the Oriental Fabrics, as most worthy of attention. Those who attempt to see all will end by seeing nothing satisfactorily. Of course, if there is any teacher who has a strong mechanical bias, for example, he would gratify it, as would be quite proper; but the displays which will best aid the teacher in acquiring higher and broader views of what he ought to do in his school-room, while ministering most highly to his own enjoyment and development, will, we think, be the three we have specified. * *

LAWS OF HEALTH AS APPLIED TO EDUCATION.*

BY NELSON SIZER.

THE temperament or physical constitution having been duly considered, it may now be proper to remark that the teacher is concerned not merely in the imparting of knowledge to his pupils. A calm, healthy, well-balanced state of the body and of the mind of the pupil, as well as of himself, is of the first importance, and this can be attained only through the right use of the physical organization. Hence the teacher should aim to institute in the school-room every means within his reach to minister to the health of his pupils as well as his own; and if he will instruct them in regard to hygiene, especially as to personal cleanliness, pure air, right modes of living, the avoidance of bad habits, such as using tobacco, eating candy, cloves, cinnamon, and peanuts between meals, gum-chewing, etc., he can render them a service which may save them from becoming victims to depraved appetites, and thereby sow the seeds of reform and morals in many a future family. Some will never hear it anywhere else.

In the early training and management of children parents should see to it that care guided by knowledge shall be devoted to the proper culture of the physical constitutions of their children, and the comforts and appliances by which a healthy condition of the body and brain may be secured and sustained. This work should not be left for the teacher, yet some parents will neglect it, and the teacher should supply the deficiency when it exists, and also aid parents who have wisely begun the work.

FOOD FOR CHILDREN.

A simple, yet plain, diet is indispensable. In England children are fed on plain food, and are not permitted to eat at the table with adults and to partake of the same articles of food. Milk, fruit, and wheat ground without sifting, with oatmeal as a change, would probably be the best food for children before they are old enough to attend

*From advanced sheets of "Phrenology in the School-room and the Family," now in the press of S. R. Wells & Co., New York.

school. If they can be made to grow in harmony and health, and their temperaments be normally sustained, they will be ready for the teacher when old enough to attend school, and will not come to him wearied, warped, and out of order, nervous, and fidgety, and fickle.

BAD AIR RUINOUS.

Perhaps teachers are not to blame that school-rooms are ill-ventilated, and hundreds of children are crowded into comparatively small apartments which are overheated. But if they understand the subject, and would do their best to insure ventilation with the means at hand, and exert such influence on school commissioners as they could, the needed reform might soon be hoped for. As long as teachers seem satisfied, school boards and the parents, their constituents, are not likely to take trouble and incur expense in the matter. A plenty of books and hard study are supposed to cover all the claims as to education, while the maxim, "A sound mind in a sound body," is ignored. If by means of bad air a pupil breaks down, the result is charged to hard study and a noble ambition to rise in scholarship. We have lectured in many academic school-rooms which were filled with pupils during the day, and when adults came to be packed in as closely as they could be seated for the evening lecture, the air was thoroughly stifling, and we have been obliged to employ carpenters to alter and adjust the windows so that they could be pulled down from the top, thus permitting the foul air and overheated air to escape; the only method of ventilation, previously, having been to raise the windows from the bottom, which would let in a rush of cold air, directly upon the backs of the pupils, which, of course, could not be endured, consequently they had no proper ventilation at all. In large towns, in these days, school-rooms are better ventilated, and at least windows are generally arranged to pull down from the top. Pupils kept for hours in such apartments, thus ill-ventilated, soon begin to suffer. Their brains become overcharged with venous, or unoxygenized blood, their minds become stupid, their nervous systems suffer from irritation, and they can neither think to acquire lessons, remember them when acquired, nor comprehend their meaning. Parents know how difficult it is to keep children quiet, at home or in church, and how natural it is for them to be active; yet they expect them to be kept still at school, and behave themselves, as it is termed, when stillness, except they become stupefied by the foul air, is next to impossible. An effort should be made, therefore, to provide for children such school-rooms as will secure for them fresh air, which is about the cheapest thing in the world, and which more than half the people seem studious to avoid.

HOME-STUDY OFTEN PERILOUS.

Not only are children thus overtaxed with study under unfavorable conditions in school, but they are expected to take their books home, and many of them have to study till bed-time. When they return to school they are confined as before. This, added to the weariness of the previous home-study, soon completes the work of deranging their health, both of mind and body. Then the noon-day lunch is frequently composed of cake, or superfine bread and butter, or both, and they would perhaps scarcely fare better if they went home for their meal; and the result is, they soon develop dyspeptical tendencies, irritability, nervous exhaustion, heat of brain, and confusion of mind. It is not to be wondered at that children crave holidays and a vacation. It is natural for them to run, leap, struggle, and exercise in a thousand ways, in the open air, in the blessed sunshine. School-rooms should, therefore, be constructed in such a way as to be light, airy, and roomy, with ventilation that shall change the air as often as need be, and sufficiently warmed for health and comfort, in such a manner as not to burn the vitality out of the air, or overheat the rooms.

SLAUGHTER OF THE INNOCENTS.

Pupils thus trained in school, surrounded by detrimental conditions, and pushed in their lessons, especially if they be of the mental temperament, and therefore comparatively slender in constitution—and these are the ones that are most likely to be pushed, and thus to over-exert themselves—take a leading rank for a time in their studies, are very likely to go into a rapid decline of health and to early death; teachers and parents having thus combined to drive the growing children to self destruction, through their over-mental exercises and the usual lack of healthful bodily action. The brilliant pupils, cut down in the morning of life, with such eminent promise of future usefulness and distinction, of course are deeply mourned by all. The sorrowing friends are told at the funeral, that "death loves a shining mark," that "the Lord gave and the Lord hath taken away." True, "the Lord gave and the Lord hath taken

away" the brilliant loved one, the pet of the household, but as a penalty of violated law. Of course, it was a sign of ignorance on the part of parents and teachers, and to this only is chargeable the death of the precocious child. It has been taken, not vindictively, but as a natural penalty for the infraction of physiological law; a law as easily understood as a thousand other matters which teachers and parents learn, and apply to the instruction and for the guidance of those under their charge. They are instructed in music, dancing, and drawing, in many games and accomplishments, and the same amount of study and effort would make them wise in the laws of health and life.

BOYHOOD AND MISCHIEF.

The burly, mischievous urchin who is too restless to study, and too full of fun and mischief to keep still, may retain his health passably well under the modes of management we complain of, for he can hardly be made to overstudy; and though he is the mischief-breeder of the neighborhood, and a pest to everybody except his forgiving mother, is not thus taken away by the Lord; and though he may violate all the canons of courtesy and good behavior, in the neighborhood, he at least obeys one law, namely that of exercise and abundant breathing, and refrains from overstudy; although he could be trained in such a way as to behave himself in the neighborhood, and to study in the school, and become an examplary member of society, if he had a method of study and discipline in accordance with his constitution. But the precocious child with great brain and mental temperament, placed in the same school with this ruddy rogue, will study faithfully and break down, while the cheery, jolly boy will do as little as he can in school, and if he gets thrashed for his sportive recreations and deficient lessons, it is for him only another method of exercise; at all events, he does not break down in health.

When precocious children under hot-house training are called to untimely graves, the old heathen proverb comes in, "Whom the gods love, die young," and that may be a consolation to the mourners; but they should learn that God's laws which relate to physical health are just as firmly established in the order of the universe, as the moral laws, and while we obey the one, we ought not to leave the other unobeyed; therefore it is little less than blasphemy to say that the Lord smites these little, slender children whom we virtually destroy by our wrong treatment.

CLOTHING OF CHILDREN.

In connection with bad air, little exercise, or that which is irregular and sometimes excessive, and the hot-bed method of mental training and excitement, by books and society, children are generally imperfectly clothed. The fashion of dressing boys with short pants, stopping above the knee, with stockings often thin and tight-fitting, with tightly laced boots, which constrict the ankle, and impede the free circulation of the blood to the extremities; and also the dressing of little girls, with skirts hardly reaching to the knee, with thin drawers and stockings as the only means of protecting their limbs, is to be sincerely regretted and severely condemned. The fashionable boy will, of course, have a thick overcoat, muffler, perhaps a fur cap, with ear-pieces; and the girl will have a massive cloak, though short, a fur-tippet and muff, but the poor limbs are not a fifth part warmly enough clad.

A man, the robust father of children thus dressed, will have thick, English knit drawers, stout cloth trousers, thick warm stockings, boot-legs to cover the limbs nearly to the knee, where the overcoat meets them, and even then he feels cold and desires Arctic overshoes, and a lap-robe in cold weather, to wrap around his feet and legs. Men know what they want, and, if able, they will have it; but the poor children, with large and overheated brains, are so very wrongly clad that the blood refuses to visit the feet and lower extremities, and, of course, it rushes to the brain, lungs, and liver, and produces unhealthful congestions, brain-fever, tending to croup, diphtheria, and pneumonia, and consequently untimely death.

WHERE FASHIONS COME FROM.

Inventors of fashions and venders of patterns, live in Paris, where grass remains green all winter, and though their styles of children's clothing would not be desirable even there, they are simply absurd and murderous in New York, and in all the regions north, where snow often falls to the depth of from two to four feet, and the thermometer ranges from zero to thirty degrees below. Occasionally we see a matron who dresses her children as properly as the short-dress method will allow. Her children are supplied with warm drawers to the ankle, thick woolen stockings, stout shoes which do not pinch the feet, and heavy leggins when they go out; and their fresh, healthy complexion, plump faces and hands, and their ample growth and good proportion are elo-

quent in praise of that mother's wisdom. Her children come to noble maturity, and "rise up and call her blessed," at least by their looks, strength, vigor, happiness and long life.

HOW I SPEND MY LEISURE TIME.

A. G. WETHERBY.

HAVING been requested to prepare an article, I think I may do the cause of education some service, and perform an act of kindness to my fellow teachers, if I tell you "how I spend my *leisure* (?) *time.*" If, after reading this article, you conclude that it is not much of a kindness, I shall not be surprised; nor shall I wonder if you decide, as I long since have done, that the teacher has no "leisure time," *in the narrower sense of the term.* Let me say to you, in the beginning, that I am not a magazine writer, and shall depend entirely upon your appreciation of my desire to do you a service from pure love of that of which I write; but I hope an experience of sixteen years in the school-room has given me some practical knowledge of the cares and anxieties of the teacher; and I certainly have a very warm sympathy for all earnest workers in the cause of intellectual development in any direction; so that, if you are trying to improve in any specialty outside of your professional routine, you may take a hint or two from my little recital, that may be of benefit or encouragement.

Some years ago I became convinced, after carefully examining the subject, that teaching alone, from its comparative amount of routine work, and the constant association of teacher and pupil, an association from which the teacher could hope to get little new mental strength at best, had a tendency to narrow the mind, and dispose it to a more limited range of thought, than almost any other profession. My conclusions rested upon the want of *general culture* among the mass of teachers, where I did not see that broad enlightenment which, it seems to me, the nature of their occupation imperatively demands. I found, as you will find upon close scrutiny of your fellow teachers, that a large majority of them had very limited knowledge of the great world of natural forms about them. Trees, plants, flowers, fishes and insects were such and nothing more. They but served to occupy space in an unstudied landscape, with no *special features.*

I did not see among pupils such a disposition to inquire into the nature of the various facts about them as it seemed to me ought to be the case if education were properly conducted, and the pupil taught to look for causes as well as to observe effects; and so, putting this and that together, I fell to wondering if I had not made a great mistake in my own education, and that of my pupils in consequence; and from this to planning what I ought to do; and after a while I worked out a little scheme for future operations which I will relate to you in a plain manner, and tell you about its results, pointing out, faithfully, its weaknesses, and not unduly exalting its successes.

Looking around for means of self-improvement among thistles, briers, mullein-stalks, woodland thickets, ponds of stagnant water, or flowing rivers deep and rapid, may not be so suggestive of comfort as a handsome volume and a cosy library; *but there I went,* and there I still stay, well content, vigorous from the welcome exercise, and well repaid for my labor by some acquaintance with many wonderful beings, whose life economy was a blank to me before.

You know that every rotting log, stagnant pool, or patch of rasping thorns is a sort of life-centre, around which cluster many living creatures, each having its life-estate in some part or property of its abode. I chose, as objects of study, the shells and insects, and went to work with a will. I had long known, from school-room experience, the only conditions of successful labor, as who that has had the experience does not? Besides, I wished to try my plan thoroughly; so, as I have said, I labored hard. Now I must expose a weakness in my scheme. I undertook *too much.* It it vastly better *to do a little well,* than *a great deal poorly;* a motto that ought ever to be present in the mind of a true teacher. I should have done much better to have confined myself to the insects or shells alone, and perhaps to a single division of these subjects. But of this anon. You can take a hint, and do as you see fit, for if you are very enthusiastic, very earnest, and very strong to work, you will be surprised at the labor you can accomplish in a single year.

But how to begin the work? The teacher habit—was strong. I went *to books!* I found my limited list contained nothing serviceable, and upon inquiry I learned the additional fact that many books on natural history are beyond the teacher's limited means; so I went at my work alone, without books.

How well do I remember my first day spent in collecting! A glorious June day,

four years ago! The sun was hot, the water warm, and I walked down to the river side, and took a mussel from the sand! Its yellow foot thrust out between the valves, was buried in the sand, and as I plucked it from the water, it was gently and slowly withdrawn. *I had never taken a living mussel in my hand before!* The creature was as new a creation to me as are the georgeous shells I have since received from Australia and the further islands of the east! Now I felt the reward of a little labor to be so rich and full! I turned my prize about; I saw its valves ornamented with beautiful green lines; its curious hinge; its graceful outline; and I felt that it was, to me at least, a treasure. I waded further into the water. The clean sand was furrowed in many directions by the tracks which the mussels had made, and I picked them out, until I had a basket full of several kinds, all fresh from the clear river water. I wanted only the shells; the animals I had no means of studying; but, when I reached home at night, and dropped my treasures into the boiling water, that I might remove them, as I had seen people do when cooking the sea clams, their wonderful structure seemed somewhat to foreshadow the pleasure I have since had in studying the animals themselves. When they were removed from the shells, I found a variety of beautiful colors, and a pearly polish inside my specimens, much more beautiful than I could have imagined. I washed my shells clean, wrapped them in papers, and left them to dry. They formed the nucleus of a collection that now numbers more than five thousand species, and contains shells from every important country on the globe! If you wonder how this has been done, I will say to you that I have been teaching all the time; I have not neglected my school work.

Now the passion for this labor grew upon me, and I must, I fear, expose another weakness. I was in too great a hurry to amass a wealth of species, and did not study them sufficiently; so that, now and then, I corrected my errors by bridling the ancient *furor*, and proceeding with greater moderation.

But, teacher-like, and justly too, you ask me what was done for my pupils? I will tell you faithfully. I took them into my confidence, told them my plans, got them to work, took them with me on little excursions, and they helped me and I helped them. To-day several of them have beautiful little collections of shells or insects, of which they know the names and habits, and about which they can give you more real information than many of the so-called *naturalists*. It has given them thus early in life—for they are but boys, you know—knowledge that was a blank to me ten years after I had reached the estate of man, and has familiarized them with nature in some of her "visible forms," building up about their thoughts a rich and new experience that gives a greater zest to study. Besides, here are the best and fullest rewards of study for boys or men, in that which creates zeal!.

Have I said enough? If so, and you desire to try, adopt a choice of studies, shells, insects or plants, and begin collecting them. The shells, being easily preserved, will serve you best. If you have no means of getting names, nevertheless collect and study them. You will begin to see differences at once, and your educated eye will grow stronger with time. By and by you will get correspondents who will name your shells, and will be glad to exchange specimens with you. You will find the work can be done all the year round. You will get physical vigor, mental strength, and amass a "collection" that will interest your friends. But above and over all considerations *to the teacher*, is the fact that you are doing something to broaden culture; to open up new avenues for thought and illustration in your daily avocation, and to lead your pupils to a fountain from which comes no polluting draught.

Above all things do not flag in zeal! To-day with the sun shining in at my window, the impulse to go to the hillsides and woodlands is almost irresistible, and this, after four years of such work proves that I am fast becoming a devotee. So to-morrow my boys and I will go again.—*Western Journal.*

A HARD WORD.

MESSRS. EDITORS: Your teacher readers are "men of words as well as deeds," and diligent in the use of dictionaries. But a word used by Max Müller in the admirable extract from his address at an English examination centre, which you give on page 360, is a puzzle that we can't find the meaning of. He speaks of France and Russia as two "Symplegades." A deservedly diplomaed classicist here, after searching Anthon, Schrevelius, and the reference tables to editions of Horace, Virgil, Ovid, etc., thinks it a misprint. A mere English scholar beaten by not finding it defined in Webster or Worcester, says it is "slang corrupted" and was meant for "Simple Gabes." But this suggestion is scouted by the rest of us as disrespectful to France and Russia, and too undignified for Max Müller.

We have gained one point, however. The address is given in Pitman's *Phonetic Journal*, and, thanks to the phonographic rendering in the context, it is shown to be a word of four syllables, all short but

the last (eez). We hope *The School Journal* can give the definition.

By the way, the *Phonetic Journal* makes a shocking inversion in one passage. *The School Journal* has it correct, of course, the phrase being "the less a child learns of theology as distinct from religion, the better." The English journal has theology and religion transposed.

Having gone off the question, let me go so much further off as to say with what pleasure one who has thought much about the redemption of our English orthography, reads in one number of *The School Journal* three such able articles on the subject as Max Müller's, George Withers' (p. 382), and John Massy's (Jean Maçè on Articulation, p. 371).

Mr. Withers is an eminent teacher of Liverpool, England, who has not only said but done—and is constantly doing—great things for the reform of our orthography. His efforts are applauded and seconded by the foremost English writers and philologists, and even by the ex-premier of the nation.

Maçè's works have been in part republished in this country. They should be in every school library. He excels in the divine art of winning children to a love for knowledge and to its thorough digestion.

With all that is being said and done, it is to be earnestly hoped that our teachers will more generally and more thoroughly learn and teach the gamut of English sounds. It is not easy to teach altogether *viva voce* from the charts. A better way to secure thoroughness is to have words written out by their sounds, employing either the diacritic signs given in all the spelling books now used, or, better still, by using the phonographic characters, which are also excellent for hand and eye training, being equivalents of first exercises in drawing.

If our schools generally had this practice we should hear far better voices and see better writing, and the scholars of to-day, when occupying our places in the future, would find the way easy and ready for supplementing our preparations, by making a complete clearance of the barbaric obstructions that almost prohibit the children of illiterate parents and foreigners from acquiring our language by the use of books.

P. S.—We have found it! Lemprière's Classical Dictionary tells us that the *Symplegades*, or Cyanæ, were two rocks (islets) at the entrance of the Euxine Sea. W.

EDITORIAL DEPARTMENT.

THE SCHOOL JOURNAL.

LANCASTER, JULY, 1876.

J. P. WICKERSHAM. . . . . J. P. M'CASKEY.

STATE TEACHERS' ASSOCIATION.

THE next session of the Pennsylvania State Teachers' Association will be held at West Chester, commencing Tuesday, August 8th, and continuing three days.

The programme is only partially completed, but the following topics will be presented for discussion:

County and Local Supervision—Opened by B. F. Shaub, Lancaster, Pa.

State Normal Schools—C. L. Ehrenfeld, Principal of Sagamore Normal School, Sagamore, Pa.

Better Classification of Public Schools.—F. A. Allen, Mansfield, Pa.

Teachers' Institute—Hugh B. Eastburn, New Hope, Bucks county, Pa.

Relation of Technical Schools to our Educational System—W. C. Cattell, LL. D., President Lafayette College, Easton, Pa.

School-Room Stimulants—E. T. Jeffries, LL. D., President Westminster College, Pa.

Woman as a School Officer—Hannah E. Holcomb, Newtown, Pa.

Industrial Drawing—Geo. R. Dixon, Ridgway, Elk county, Pa.

As the association, from its proximity to the Centennial Exhibition, will partake somewhat of a national character, several prominent educators from other states have been invited to attend.

It is the desire of the executive committee that the attention of the Association be confined to a few important topics, and that ample time be allowed for a thorough discussion of them, not with a view of establishing any *particular views*, but to elicit the *truth* by a fair and searching investigation. Communications in regard to topics for discussion should be addressed to

GEO. L. MARIS,
West Chester, Pa. *Chairman Ex. Com.*

THE conference of those interested in education, both of our own country and of foreign nations, held in the Pennsylvania Educational Hall, on Saturday, June 17th, was a pleasant affair, and will probably result in a permanent organization, to continue during the Exposition.

IN Denmark permission has been given to women to follow the different courses of the university, except in the faculty of theology, to obtain academic degrees and diplomas of capacity. They are allowed to be matriculated in the universities, and to pass the same examinations as the men; thus, as in England and in the United States, acquiring the right to instruction.

PENSIONING TEACHERS.—Mr. George W. Curtis has written a letter in favor of pensioning common school teachers, in which he says:

Teaching in public schools is as essential a part of the public service as the discharge of duty in the army and navy, and the faithful servant in one branch is entitled to the same consideration as his fellow servant in another. The pension would make teaching an assured career, and constantly attract to

it the best teaching talent in the country, and the efficiency and value of the schools would be promoted just in the degree that teaching ceases to be a temporary resource, as it now so often is. The best service in any public department is always the cheapest, and the advantage that the state would purchase by this little outlay would be inestimable. I cannot help thinking that the proposition must command the warm sympathy and support of the more intelligent friends of the common schools—and with all my heart I wish it success.

OUR sister state of Maryland dedicated her new normal school building with interesting ceremonies on Friday, June 2nd. The opening address was delivered by Governor Carroll. Additional addresses were delivered by Professor Newell, the principal, Mayor Latrobe, of Baltimore, and President Gilman, of the Johns Hopkins University. We are glad that Maryland has erected new buildings for her normal school; and we are even more glad that our excellent friend, the principal of the school, has realized his long cherished hopes.

THE Centennial Exposition is a great school. An intelligent boy or girl will learn more there in a week than he would learn in an ordinary school in months. We therefore urge it upon teachers and parents that they give, as far as possible, an opportunity to the young people of the state to see the most interesting collection of objects that has ever been brought together. It will cost something, but it will pay in every sense. Our colleges, academies and schools will soon close; but when they open again in September next, the Exposition will still be at its best, and we would like to see on the ground hundreds of teachers with their thousands of pupils. By that time, we think, the authorities of our railroads will make further reductions in fare, and we feel almost sure that the Centennial Commission will reduce their present rates of admission for bodies of persons like schools, and for children. That father we take to be a wise one whom we heard say, a few days since, that "his children must see the Exposition thoroughly, even if he must shorten their time at school and college to pay the expense."

A LARGE number of wise and wealthy citizens of Indianapolis have sent memorials to the school commissioners, requesting that a proposed reduction in teachers' salaries shall not be made. These memorials contain vigorous and incisive protests against such action.

THE editor of the *Illinois Schoolmaster* puts the matter as follows: "We see, by the Aurora papers, that somebody in that city is conducting a violent attack upon public high schools, through their columns. His arguments are the stupid trash that has been advanced and answered time and again. The most prominent is that the poor are taxed that the children of the rich may receive a high school education. We think the statistics of any public high school in the country will show that the poor receive a larger proportion of the instruction there imparted than they contribute to the expense of the school. Look the matter up, friends, and see if this is not true. Besides, if the public high school did not exist the children of the rich would be furnished an education of similar grade elsewhere; but where would the children of the poor find any such favor whatever? Certainly, the poor men are the last who should find fault with the public high school. But then, this argument is 'of a piece' with the demagogue's argument in other fields; intelligent demagogues do not believe them themselves, but think they will have weight with the ignorant. In respect to the discussion at Aurora, however, there is little to fear, for the high schools have a champion who is a full match for his opponent."

TEACHERS and others who propose to visit the Exposition at Philadelphia would do well to prepare themselves for the visit as thoroughly as possible, by reading all descriptions that come under their notice in newspapers and elsewhere, by making notes of what they propose to see, and by brushing up their geography and other half-forgotten branches of study. It will be found a good plan to make a centennial scrap-book and note-book, that can readily be carried in the pocket, placing in it all clippings of interest that will aid in making the visit more profitable. The bewildering magnitude of the Exposition is such that those who go there for a brief visit, without any definite idea of what they propose to see, will too often wander aimlessly through its vast buildings, and return home exhausted in body and mind, and with very confused ideas of a great mass of things, most of which they did not understand. We suggest, therefore, as intelligent preparation as possible before going, and careful observation while there—if the reader would get all the good from his trip which it is capable of affording. *The Journal* presents this

month the best description of the Government Building which we have yet seen; last month several pages were devoted to the Main Building; next month we hope to reach the Agricultural Building, Machinery Hall, and perhaps the Art Gallery. The visitor who shall have carefully read these articles will come in some measure prepared for what he is about to see, and he will congratulate himself on the foresight which "read up" the Exposition before attempting to "do" it.

A WRITER in the *N. E. Journal of Education* very wisely says: "Before leaving the study, a teacher's knowledge of the day's work ahead should be most thorough, even to the minutest details. Anything short of this is inconsistent with that feeling of confidence in self, that consciousness of mastery of the subject, which is so essential to the peace of mind of the instructor, striving to meet the demands of accurate scholarship. Thorough previous preparation is demanded of us. But what does this involve? Not simply a knowledge, though full, of the subject as presented in the text book used—meagre, indeed, would be the outfit of a teacher thus scantily equipped—but a comprehensive, philosophical grasp of the whole subject in its varying phases and relations to kindred topics. Remember, also, that the prime duty of an instructor is to convey instruction, not to preside at an examination; let the recitation be not a mere asking of questions."

THE Superintendent of the Public Schools of Brooklyn says of drawing in the schools of that city: "The instruction in drawing has accomplished such results during the past year as to entitle it to all the consideration which has been claimed for it by its friends. The marked effect upon the writing of a class or school by careful and judicious instruction in drawing has often surprised me, notwithstanding my familiarity with its results. One result of this systematic tuition will doubtless surprise some of the tardy friends of instruction in drawing in our public schools. It was believed and often asserted that an enlarged and costly scheme of art tuition would result in developing and fostering the taste of only those who possessed it originally, leaving the great mass of pupils totally unaffected by the instruction. But I have found wherever the coöperation of the local teachers has been hearty, that whole schools have become so far accomplished in drawing and designing, that it was difficult to find a single book without evidence of educated taste and skill." The superintendent recommends giving reading and writing lessons the preference over all other studies. He also criticises the excessive devotion on the part of teachers to the non-essential details prescribed by the text-books. He says: "It is the marking of time without the progress of the march. Thus, to avoid violation of the strict order in progression, which most authors seem to consider a quality as sacred as virtue, no text-book of arithmetic teaches multiplication by fractions of which the numerator is one, until that awful portal to mathematical knowledge, called common fractions, is reached, after an entire year of toil and study intervening. The scholar is taught to multiply by any series of whole numbers, but cannot, though his existence were in peril, multiply by one-half or one-third. Many thousands of pupils leave the public schools from the first primary and sixth grammar grades, to whom the process of ascertaining the cost of any article of commerce whose price of unity should be twelve and one-half cents, or thirty-three and one-third cents, or any other of the common fractional prices, would be as great a mystery as the integral calculus."

UNTIL very lately national education was little cared for in England and Wales. On the contrary, ample provision was made for it in Ireland and Scotland. An act to provide for public elementary education in that part (South Britain) of the Kingdom was passed in 1870, and ample means and accommodation were ordered to be provided for the purpose, to be available for all children for whose elementary education efficient and suitable provision was not otherwise made; that when the parents, from poverty, were unable to pay, the children should be educated without payment, the expenses to be defrayed from local rates, and that the school boards should have the power of making it *compulsory upon parents to give all children between the ages of five and thirteen the advantages of education.* This measure of progress was framed by Mr. W. E. Forster, M. P. for Bradford, and as vice president of the committee of council, a member of the Gladstone Cabinet, he superintended its working until the change of Ministry, early in 1874. The result was that, whereas in 1840 the Parliamentary grant for education amounted to $1,500,000,

it reached the large sum of $5,193,120 in 1871 (the year after the act came into force) and was $9,805,625 in the year 1875. The average number of children under instruction is 2,500,000 out of a population of nearly 24,000,000. It is not denied by those who take an interest in educational matters that the great and effective change of system made by the act of 1870 is chiefly owing to the success of popular education in the United States.

ENGLISH PHILOLOGY.—The Rev. Walter W. Skeat, a good authority, complained lately in the London *Academy* that the study of English and English literature was discouraged in Oxford and Cambridge, and added that "we may learn Anglo-Saxon, or indeed, English of any period, by going to Germany or America." Whereupon Mr. C. F. Richardson reviews, in a recent issue of the New York *Independent*, the course of study in various American colleges in this department, and finds that the opportunities for studies in English philology in the various colleges are by no means proportionate to the size or reputation of the several institutions. His conclusion, after an extended and thorough review of the whole subject, is that "at Harvard, Lafayette, and Cornell, the opportunities are ample, those at Lafayette being, on the whole, the best in the country."

THE CENTENNIAL.

NOTABLE POINTS IN THE EDUCATIONAL DISPLAYS OF FOREIGN NATIONS.

THE readers of *The Journal* shall in due time, unless our plans fail, have in its columns a full description of all educational material worth describing exhibited at the great Exposition now in progress at Philadelphia. But at present we confine ourselves, for want of time to do more, to the notice of a few points of special interest in the display of foreign nations. We shall speak of them in the order in which chance has led us to look at them.

JAPAN.

Japan, it is well known, has made rapid strides towards a higher civilization within the last few years. With the aid, principally, of American educators, whom she has induced to engage in the work, she has established schools and organized systems of education that bid fair to rival in efficiency those of nations that had much the start of her. With all the zeal of a new convert, therefore, Japan has sent quite a large educational exhibit to the Centennial. It is located in the Japan department, near the southwest corner of the Main Building.

In the collection there are several school desks and seats for scholars. These do not compare in make or finish with our best school furniture, but they are quite as good as the average desks and seats found in our country schools. A fair display is made of philosophical apparatus, in pattern not greatly differing from our own, and of globes, maps, &c. Some hundreds of volumes of books are nicely arranged on shelves, but our ignorance of the Japanese language and the warning, "hands off," prevent us from reporting their contents or character. We noticed among them, however, volumes of school reports and a dictionary of the English and Japanese languages. Their charts of natural history, of animals, plants, insects, etc., do them credit.

As illustrative more directly of the school life of the nation, the exhibit contains views of school-houses, exterior and interior; views of teachers and scholars at work; records of examinations, much like our own; maps drawn by boys and girls in the schools of Japan; and compositions written by Japanese scholars in English, French and Japanese.

SWEDEN.

The only school-house proper erected on the Centennial grounds is the beautiful structure built by the government of Sweden. The carpenter work was mainly done in Sweden, and the several parts of the house were brought over and put together here. There is something of historic interest in the fact, that the Swedes were the first people to open schools in the territory of Pennsylvania, on the banks of the Delaware; and now, as if to revive old memories, they bring to the Centennial a school-house, to show us how deep their interest still is in the work of education.

The "Swedish school-house" is not simply a school-house, but it is a school-house and a teacher's house combined. In Sweden the teachers are not generally young, unmarried persons, as with us; most of them are heads of families, and, when once established, they are quite likely to remain in the same place for years. To provide for this condition of things, the Swedes very generally erect a house for the teacher in connection with their school-houses, and

provide him with a yard and garden. That advantages are derived from this plan, there can be no doubt. We shall most likely some day imitate it.

There is nothing very remarkable in the plan of the Swedish school-house. The ceilings are high, and the rooms are well lighted; but we have many unpretentious school-houses in America that are better arranged, both for purposes of instruction and discipline. The workmanship shown in the construction is admirable.

The school-house is fitted up with teachers' and scholars' desks, seats, tables, etc. These are all very clumsy in comparison with our best school furniture, and are far from being as well adapted to their purpose. Among the school apparatus and appliances exhibited there are maps much superior in fullness, accuracy and execution to any school maps we have in this country; some philosophical apparatus; very fine geological, botanical, zoological and other charts; a chart of weights and measures; and collections of birds, fishes, plants, fossils, etc.

We were particularly interested in a case containing, in small spaces, specimens of ores, rocks, nuts, grains, seeds, plants, insects, shells, etc. The case is probably not over five feet square, and may be two or three inches in depth. It is placed against the wall, and consequently occupies but little room. Its contents are several hundred specimens of objects of a character admirably adapted to interest and instruct young children. With a little effort and a few dollars of expense such a case could be placed in any school-room. In our primary schools, as material for object lessons, its value would be incalculable.

Nordlund's apparatus for teaching Arithmetic seems to be well adapted to the purpose. We were specially interested in a frame arranged to aid children in comprehending the decimal scale in numeration. There are in the frame two hundred and fifty-three holes of three different sizes, holes of the second size being ten times as large as those of the first, and those of the third ten times as large as those of the second. The horizontal rows contain nine holes of each size, the nine smallest ones being on the right hand and the nine largest ones on the left. Little pegs or sticks are provided in bundles. The small holes will hold *one* each, the next in size *ten* each, and the largest ones a *hundred*. By this simple contrivance children can readily be taught to count and to understand how ten units make one ten, ten tens one hundred, &c.

There is also on exhibition a new mode of teaching Geography. An outline map of Sweden is fastened on a frame of wood. The most important localities on the map are indicated by small pins. At hand is a box containing little blocks, upon which are printed the localities designated. These blocks fit nicely on the pins. The lesson consists in selecting the proper block for each particular pin.

Sweden has also, in the Main Building, a very full and complete representation of some of her technical schools. There is a large collection of drawings, models and specimens of workmanship. We have found nothing better of the kind on exhibition, and we shall hereafter give a more particular account of it.

NORWAY.

Norway comes to Philadelphia with a small educational exhibit. It is to be found near the northwest corner of the Main Building. Its principal feature is a teacher's desk and chair, and desks and seats for some forty or fifty scholars, arranged as if in a school-room. This school furniture is greatly inferior to our best American school furniture; but it is quite as good as that of most other European countries. On each of the scholars' desks there is lying a copy-book, as if the lesson had just been written, and the children had within a moment gone home, or out to play. The copies are written in very much the same way as we find them in our country schools. In addition to the furniture there are some very good maps on a frame, and several pieces of philosophical apparatus.

BELGIUM.

The Belgium educational exhibit is near the centre of the northern half of the Main Building. As a whole, it is very creditable.

All school houses in Belgium are built after plans prescribed by the Government, by whom an architect is employed to supervise the construction. The Government officers also prescribe furniture, apparatus and text-books. These facts give interest to the model school house, erected in the Belgian department and its equipment. It is a measure of the best educational skill of Belgium; not as such a model would be with us, a measure of the general intelligence of the people respecting education. The model is a large one, perhaps half the natural size. There are two front entrances, one of which opens into a vestibule, pro-

vided with umbrella stands and hooks for clothing, etc.; and the other into a well-equipped gymnasium. The school-room is supplied with desks and seats for teacher and pupils, but they are very inferior to the best used in this country. The provision made for heating, lighting and ventilating is admirable, and we shall hereafter describe it in full, but teachers and directors should visit the room and see for themselves.

There are in the school-room on exhibition books on primary instruction, text-books, very fine maps, charts of natural history, philosophical apparatus, etc., etc.; but what struck us there, as well as in other European exhibits of primary instruction, was the full provision made for object lesson instruction. In this respect we are quite behind all the more enlightened nations of the old world. If this school-room represents truly the school-rooms of Belgium, as we were assured it does, they must all be a museum on a small scale. There are here cases of animals, sets of minerals, shells, fossils, etc.; specimens of plants and woods; bottles containing seeds, grains, etc.; the feet and wings of birds; the horns and furs of animals, and many other objects of a similar character calculated to interest and instruct the young. It is in this direction that we must endeavor to make improvement. Lessons given from object lesson *books* are comparatively worthless; lessons given on real *objects*, like these exhibited in the Belgian school-room, furnish the best possible instruction for the young.

A pamphlet in French, kindly handed us as we passed through the educational department of Belgium by the gentleman in charge, gives a full description of a Belgian school-house and its equipment. This we will translate and publish as soon as we can find the time to do it.

CONCLUDING NOTE.

When we began this article we expected to be able to notice briefly the educational exhibits of all the foreign nations making them. We find now that we have neither the time nor space to do this, and shall, therefore, postpone what we have to say further until next month. At that time we hope to give some account of the fine display of Ontario, located in the northwest section of the Main Building; and those of Switzerland, the Netherlands, Germany, Russia, Brazil and Portugal, located in the several departments of these nations. In the meantime, we doubt not, many of our readers will see what is to be seen for themselves, and will, on that account, render our task more easy to us and more profitable to themselves. By all means, let no one stay away from the Exposition.

FOREIGNERS LOOKING AT OUR COUNTRY SCHOOLS.

SCHOOLS, like everything else under monarchical institutions, are managed by government officials. The people have very little to say in regard to the matter. These officials build and furnish school-houses, supply apparatus and text-books, and provide teachers. The *people* really have nothing to do concerning education but to send their children to school. There are, of course, some advantages in this plan; but it has a tendency to weaken the intellectual force of a people and deaden their political life. And, as a further consequence of it, school officers coming from the Old World, and accustomed only to its ways, are greatly at a loss to understand how *the people can manage their own school affairs.* There are now at the Exposition in Philadelphia many distinguished foreign gentlemen specially interested in education, and their inquiries most frequently point in the direction of the local management of our schools. They all seem to consider this local management as a weakness in our system, and if it is not a weakness, as we claim, they are anxious to have the fact demonstrated. With this end in view, a number of foreign gentlemen were invited by the Superintendent of Public Instruction to accompany him to a *common-school pic-nic*, held in Solebury township, Bucks county, on Saturday. June 10th.

Solebury township has twelve schools, and it has been the custom for several years to hold a pic-nic in Beaumont park, a beautiful grove within the limits of the township, mainly for social purposes, but at which some school exercises take place, and generally several addresses are delivered. Such an occasion, it was thought, would furnish intelligent foreigners a proper opportunity of seeing the teachers and pupils of our public schools, the directors and people.

The invitation of the Superintendent was accepted by Sir Charles Reed, M. P., of England; Count Guiseppe Dassi, of Italy; Col. Marin, of Spain; Monsieur Fouret, of France; Commissioner Paul Liptay, of Hungary, and Dr. John W. Hoyt, of Wisconsin, one of the Judges on Education and

Science. Two ladies, friends of Sir Charles Reed, were in the company. Gentlemen from Sweden, Belgium and Switzerland had accepted the invitation, but were unable to go with the party.

What transpired on the trip will now be told by the Bucks County *Intelligencer*:.

A few minutes before two o'clock the strangers expected came into the building, under the guidance of State Supt. Wickersham. They were a distinguished party of gentlemen, and would attract attention anywhere by their notable appearance. They had come to Langhorne in the morning, and were driven to Belfevue Institute, Attleboro', where they were furnished with an ample collation that served as breakfast to hungry travelers. From there they were driven to the Park, by way of Newtown and Pineville, and were highly pleased with their ride and what they were able to see of our country and customs.

Co. Supt. Eastburn, in opening the exercises of the afternoon said that this was not the first meeting of the kind; it was not a new thing in the history of the county for scholars, teachers and residents of a school district to gather on an occasion like the present. It quickened the interest between scholar and teacher, and showed the visitor what had been accomplished in the school-room. Hitherto it had always been the good fortune of these meetings to be addressed by friends of education, and to-day he had the satisfaction of stating that there were those present, not only from this country, but from abroad, who were warmly interested in the cause of education. When he had closed his remarks a diminutive specimen of girlhood ascended the platform, carrying in her arms a bouquet nearly as large as herself. With a pretty little speech and graceful bow she presented the flowers to Mr. Eastburn amid the loud applause of the spectators. Mr. Wickersham followed Mr. Eastburn in a brief speech. He said that he felt at home in Bucks county, and was glad to be here. The gentlemen he came with were working hard for the cause of education, and some of them had fought for it in the face of great difficulties. They knew how the system of American schools worked in the cities, but they wanted to see American schools in the country, and were here for that purpose.

In introducing the opening exercise of the afternoon, Mr. Eastburn stated that a course of study had been adopted in the township so that as far as practicable the different schools, though separate, might pursue it at the same time, and that in a certain measure it had proved successful. He then proceeded with the exercise, which was a historical recitation. The different states of the Union were represented by little girls, who wore sashes of red, white and blue with the names of states fastened upon the sashes in gold letters. The representatives of the states which formed the original thirteen first took their positions upon the platform, and called off in proper succession the name of each state and the date of its admittance into the Union. In response to each call a little girl came tripping up to join the others upon the platform, and when the whole number had collected there was an array of smiling faces and fairy forms enjoyable to look upon. Most of the girls were dressed in white, with red, white and blue bows, and these, with their sashes and emblems, made an attractive appearanee. "The Poem of a Hundred Years" was recited in concert, and then each state gave a short account of its history, including settlement, population, industries, distinguished personages, etc. The exercise was concluded by the singing of "Columbia," and a concert recitation of Whittier's Centennial hymn.

Mr. Wickersham, being called upon, made a few remarks, expressive of his pleasure at what he had seen, and then introduced Sir Charles Reed, of England. This gentleman, who is a fine type of an Englishman, made an excellent speech. He said he was sorry to feel that he was a foreigner among those present; the geographies said such was the case, and perhaps it must be so; but he hoped in heart they were entirely united. If anything had been wanting to him in sympathy or interest this day had supplied it. He could not express his pleasure at what he beheld. He had admired the little states on the platform before him as much as a married man ought to; he could not tell which state he liked best, though he favored the united states. But, added the speaker, if they represent the grand combination known as the United States, then God bless and prosper the United States. He did not envy us, but he congratulated us. At home there had been religious and other questions agitating the public mind, and education had been put in the background. He had visited the United States several years ago, and had been impressed by its admirable school system, and he believed England would soon be its rival in this direction. He was glad to be here, and to participate in the enjoyments of the day, and would return home refreshed and invigorated by his trip to "Buckinghamshire." Sir Charles' manner was genial and hearty, and possessed a fascination that commanded attention. His pronunciation was somewhat different from our own, just enough, however, to give an additional charm.

Count Guiseppe Dassi, of Italy, was then introduced, who spoke a few words of congratulation and pleasure, though loud enough to be heard only a short distance from him. Monsieur Fouret, of France, not being able to speak English, though he understood it to some degree, spoke in French, and his rapid enunciation and apparent earnestness caused considerable amusement. Col. Marin, of Spain, stated that he could express himself much better in Spanish, and suddenly dropped from English to that language and rattled away in a style that has no counterpart outside of his own musical language. The Colonel was handsome to a degree that does not often fall to common humanity, and it was not difficult to believe in the fabled beauty of the Spanish duennas when looking upon his noble features. Paul Liptay, of Hungary, spoke quite fair English, but once in a while a word would get the wrong sound. His language, however, was excellent. He said his greatest surprise was to find children making speeches in this country. Such a thing was never taught in his own country. He had been greatly surprised at the Centennial. From the impressions he had received abroad at other World's Fairs he had a poor impression of the United States, but this was changed since he came here. His country was a sleepy country, and needed waking up. He finished by giving a sample of the Hungarian dialect, which was as well understood by the auditors as were the French and Spanish. Dr. John W. Hoyt, of Wisconsin, who followed, said that although he always shrank from making a speech, still he found in this occasion an inspiration that refused him silence. The speaker paid some tribute to each of

the different countries represented, and at the proper moment grasped each representative by the hand. This was not without dramatic effect, and was heartily enjoyed by the audience. The visitors were compelled to leave at this time to catch a train on the Belvidere road, and the gathering broke up shortly after with a song.

The party reached the city at an early hour, all much pleased with the trip. The Hungarian, Mr. Liptay, was very enthusiastic in expressions of pleasure at what he had seen, and at once sat down and wrote in the best English he could command the following letter to the editor of a Bucks county paper:

E. F. CHURCH, ESQ., *Dear Sir*—We just arrived all well at Philadelphia, and being yet under the most favorable impressions of our so very cordial reception with which we met, and the soil of the beautiful Bucks county, I can't retain myself from giving words to my thankful feelings, having spent one of the most pleasant days which I shall ever remember in my life.

Your most honorable superintendent of the state schools is quite right in stating that we foreigners, in our journeys and travels, generally visit the large cities and their institutions, and go home mostly with favorable impressions, without having seen the real people in the country, those who live sometimes far away from great cities, in the pleasant little farm houses, having no other pretensions as to become a good citizen to the country, by their daily labor and their true and pure patriotism.

It is impossible to express my surprise and astonishment, meeting in Beaumont Park the great assembly of real and beautiful ladies, the intelligent gentlemen and the lovely children. What a difference between your people and the farmers—or better called peasants—of the European continent! How clean and lovely your people were dressed, how fine and distinguished was their behavior! What high degree of intellectual mind I have found there! I was quite bewitched to be on the boulevards of Paris instead of in a farmer county of the Centennial State.

The exhibitions of the scholars was so thoroughly Yankee and genius and lovely, that I shall try to introduce this kind of examination into my country, taking, instead of your big states, our much smaller districts, and I am sure to succeed to the admiration of my people at home.

This is the way to make American people known to us strangers from far-off countries, who are pilgrimating over to the Centennial Republic, to bring home new ideas to our new generations in the old world.

I have been deeply impressed upon with everything I have seen, and taking the liberty to write you in my bad English these few lines. I do it because the joy and thankful feelings are overhaloing me, and my sentiments seek a way out from my heart, which will beat ever and ever for the progress and benefit of the liberty-loving people, and for the benefit of the whole humanity.

Thanks and kind regards to all the inhabitants of Bucks county and Solebury township for the kind reception they have granted us.

God's blessing may rest upon their work and enterprise. Your most obedient servant,

PAUL LIPTAY.

POTTSVILLE SCHOOL PIC-NIC.

THESE common school pic-nics are becoming more frequent. Several townships in Bucks county have had them. Allegheny City recently gave her ten thousand children a grand, glad holiday in the city park. The Pottsville school children, teachers and directors spent Friday, June 16th, in a beautiful grove near the town. And we hear of other school districts, both town and county, that are preparing to imitate the example. Why not? We believe there is much gained and nothing lost by the practice. The common schools are a common interest. A common school pic-nic brings together the young and old of whole community, without distinction of class, condition, party or sect. This in itself has a unifying, harmonizing, elevating influence. So beneficial are the effects of these gatherings, as we have observed them, that we feel like asking teachers and school boards all over the state to take measures to hold one annually in each district where the schools are open in the summer. We have even thought of proposing the setting apart of one day yearly, to be called the "Children's Day," on which all districts having schools in session shall hold pic-nics. But of this again.

As we were present at the Pottsville pic-nic, we have a few words to say concerning it, adopting in part the article on the subject which appeared in the *Miners' Journal.*

Early yesterday morning the excitement began. Not only were the children affected, but their parents, too, were aroused, for something unusual was to take place. The schools of the borough were to join together in one grand pic-nic at the Agricultural Park, and have a gay and happy time, instead of poring and cramming over school books in a hot, sultry room. To romp and run, instead of being quiet and studious. To sing, and laugh, and shout, and play, instead of being scolded for missing lessons, and getting sleepy and tired. The idea was "just lovely" to the children, and no wonder they were excited. At an early hour they wended their ways to their school-rooms in the different parts of the town, and there left their baskets of provisions and refreshments. Then all went to the Centre street schoolhouse, and by half-past nine o'clock were formed into one immense procession, headed by a large banner containing the words: "Our Country's Hope—The Public Schools." The line being formed, the children marched down Centre street to Norwegian and out Norwegian to the Agricultural Park, each school forming a company with an appropriate banner. The procession was witnessed by nearly the whole population of the town, and was a beautiful sight. Its length must have been nearly a mile, there being about two thousand children in line, with teachers and directors.

Arrived at the grove, the children were allowed to play at will, stopping only long enough to eat their dinner, until two o'clock. At that hour the children, the teachers, directors, and hundreds of citizens, assembled to hear the addresses. J. A. M. Passmore, president of the school board, called the meeting to order. Prayer was offered by Rev. Samuel Barnes. State Superintendent Wickersham delivered a short address, suited to the occasion, and was followed by Messrs. Haywood and Meyers.

After the speeches the grammar schools sang for a while, and then the children separated again to amuse themselves in play. It was quite late in the afternoon before they began to retire, and some of the larger ones stayed until nearly dark. All will remember yesterday as one of the bright days in their lives, and not one is there among the two thousand who will not look forward to the general school picnic of next year with the brightest anticipations.

While on the ground the State Superintendent, accompanied by a few friends, found time to pay a short visit to the Schuylkill county Home for Friendless Children, which is located near by. There could be no better location for such an institution, and it is only just to say that the buildings were found to be well kept, and the Home under admirable discipline and management.

NIGHT SCHOOLS.*

THEIR NECESSITY IN MINING AND MANUFACTURING TOWNS.

THE present school law of this Commonwealth permits the directors to appropriate a portion of the school money in their hands for the purpose of sustaining night schools. The wants of the day schools have generally been so pressing, that only in a very few instances has there been any money expended by the directors in the establishment and encouragement of night schools. This department would, therefore, suggest that the legislature appropriate a certain sum of money (exclusive of the amount already appropriated for school purposes), to be termed the Night School Fund, and make it obligatory upon the directors in certain localities, to be designated by law, to apply said fund in payment of teachers' wages, and the purchase of any needful articles necessary to maintain night schools in mining, mannfacturing and populous towns, for at least five months in the year, where youth of both sexes, between the ages of fourteen and eighteen years, may receive instruction in the common school branches.

It is due the youth of the commonwealth, who labor through the day, that additional provision be made by the legislature for their instruction and education.

Without desiring to enter upon the discussion of this subject, it might be well to mention the fact, that in localities where night schools have been in operation, either in mining or manufacturing towns, they have universally been attended with good results, and the scholars have made more satisfactory progress, according to the number of hours taught, than those of the same age in the day schools.

Boys and girls who have a reasonable amount of labor to perform through the day, are in a better condition to study than those who go to school daily, having no manual or physical exercise. The muscles, nerves and brain power of those who work are in a healthy state, while in too many instances the day scholars are lacking the vital energy essential to the successful accomplishment of their task. It is the experience of almost every teacher, who has taught in the day and night school, that the scholars in the night make the greatest progress, from the fact that they are physically and mentally better prepared for the duty assigned them. It may be urged by some if these deductions are correct, it were better to abandon the day school; no, that is not the logical sequence.

The deductions and inferences are, that manual labor better prepares the student for mental culture; that could we establish schools throughout the commonwealth, where the student was required to perform certain manual tasks in addition to their regular course of study, then would greater progress be obtained, and our graduates be both healthy and wise.

We resort to the gymnasium now to supply the deficiency in physical action in school life, and in one sense lose the muscular force expended. By instituting manual labor we husband this force and utilize it.

There are some well-founded objections to the gymnasium, the exercises in many instances being too violent and excessive. This extreme view in relation to the gymnasium might be placed as an offset to the objection raised against manual labor in our schools, viz.: that it fatigues the students and incapacitates them for study. There are sufficient reasons, however, for retaining the gymnasium in our public schools. There is a safe medium ground, and the reasons for the encouragement and establishment of night schools are manifold.

Without attempting to discuss the details of the proposed bill, or naming the amount of money to be appropriated for that purpose, this department most earnestly and

*From the recently published report of the State Bureau of Statistics.

respectfully recommends to the consideration of the legislature this subject of night schools, and suggest that it take suitable action in the premises, by framing a law that will make the necessary appropriation, placing the general supervision and direction of this matter in the hands of the Superintendent of Public Instruction, and making it a part of our great common-school system.

COMPULSORY EDUCATION.

"HOW shall we secure better attendance?" will long continue one of the vexed questions of school legistation no less than of school administration. Vast sums of money are annually expended that education may be free to all. School houses dot the country far and near—on the mountain, in the forest, on the hillside, in the valley—everywhere they give that pressing invitation of the olden time: "Come, for all things are now ready." But multitudes there are who pay no greater regard to the friendly call than did the thoughtless ones bidden in the parable. When we look at the figures of the last census we find a showing of which an American—who might happen to be, say, in Prusssia—would find little reason to boast. Of 38,558,371 people in the land, 28,238,945 are over ten years of age, and one-fifth of this number, or 5,658,144, can neither read nor write! Of these illiterates 4,882,280 are native-born, and 777,864 are foreigners; 2,879,543 are whites, and 2,778,601 Chinamen, Indians and negroes. The leaven of intelligence is spreading in all directions, but less rapidly than is possible and much less rapidly than is desirable. Education is looming up as a question of national importance. It will soon constitute a leading plank in the political platforms of our national conventions. Politicians cannot longer ignore it. In the meantime it is a question of local concern for Pennsylvania as to the policy which will reduce her own hosts of illiterates. The advocates of compulsory education make a strong case for their side of the question. Anna Dickinson recently treats the subject in forcible style as follows:

"We have established an admirable school system; we have built school houses; we appoint teachers; we pay our taxes; we elect officers of the law to see that these matters and these people are looked after. Nothing more remains. If any prefer to be ignorant, helpless, vicious, criminal, let them pay the penalty."

Meanwhile, we too suffer—as we ought.

"We have done all we could, and more than any one has the right to demand of us. You certainly cannot expect us to go into the highways and byways, and call aloud, and even compel these children to come in." Even so.

The man who reads this, and who so speaks, lives on some broad avenue, or some cleanly and wholesome street. Day by day he comes out of the front doorway of his house, and meets people who live in homes, and among surroundings, like unto his own.

He knows that the *rear* windows and doorways of his house look out on narrow winding alleys, or over crowded courts, or filthy streets. He knows it. He does not *realize* it.

He knows that human beings are packed into vile dens, or rotting tenements, swarming from stifling garret to mouldy cellar. He knows that out of this over-crowding, under-feeding, filth and wretchedness, disease is born, and stalks day by day gathering its multitudes from left and right. He knows it. He does not *realize* it.

He knows that consumption is stalking through the alley; aches and pains, shivering chills and burning fevers, are stalking through the alley. He knows it. He does not *realize* it.

By-and-by he hears that, following this ghastly procession, the loathsome giant of small-pox is stalking through the alley. Then what does he?

Does he say: "There are the city ordinances. There is the Board of Health. There are the laws and the officers for such emergencies. I elected them; if I didn't, somebody else did. My taxes help support them. If they choose to neglect their duty, what's that to me? It is no concern of mine." Is *that* what the man says?

Or, does he say: "It would be a pity for the law to interfere with those children? I hear it is children who are dying of that horrible disease. Poor little wretches! What possible future is before them? They will be infinitely better off out of this world. It is thwarting Providence to compel them to live. It is a good fate that has befallen them. Let them die unmolested." Is *that* what he says?

Or, more mercifully disposed, does he say: "There is no doubt those health officers do not half attend to their duty. I will tell my family physician to step into the alley, and see what he can do to alleviate its misery." And his family physician coming back, announcing that the ignorant wretches who there abide are afraid of him and his medicines and his interference, and will have none of him and his work, does the man answer: "Very well; a man's house is his castle. I cannot force entrance even to save his life. If he *will* die, my hands are clean, and my skirts clear." Is *that* what he says and does?

The man knows that sweeping up from the infected alley, borne on the wings of the wind, impalpable, intangible, disease loathsome, death awful, are being carried towards the rear windows and rear doorways of his own home. And if health laws are insufficient, if health officers are careless, are slow, are inefficient, he rushes himself to the alley. Do the people bar window, and lock door, door and window must give way. Do they cry, "This is mine! you shall not interfere, you shall not enter!" they are swept aside while the little perishing wretches are carried away to the hospital in which they can be nursed and nourished into life and health once more, while the pestiferous place is fumigated and cleaned. He does it; and he has the right to do it, by that first law of nature—self-preservation.

There is no disease more subtly penetrating, none more destructive, more surely death-freighted to such a government as ours, than that of *ignorance*. And if those who are infected, having the means provided to wash and be made whole, refuse so to do, then, in self-defence, we ought to see that the means they reject are used, and used efficiently to a healing and wholesome end.

We need a *moral* nuisance Board of Health, backed by the active support of every decent and vigorous element in the community. And this should be done in behalf of the tax-payer, in behalf of the child, in behalf of the general weal. The state has the right to do whatever it believes essential to the preservation of its security, prosperity and life. Upon this belief is the system of free schools founded. Upon this belief is levied the general tax for its support, demanded by State law, collected by State authority.

The State comes into a man's house, and says to him—I take your money for the public good; and, since it *is* for the public good, you cannot refuse, and no man may hinder. I take it from you, a property-holder, because a republican government cannot live unless there be intelligence among the people. Unless the masses are educated, there can be no security to life and property. In many a case such a tax-payer as you may receive no direct benefit from the money claimed, since the heaviest tax-payers are not those who usually send their children to the public schools; yet advantage comes in the maintenance of good laws, and the increased security to life and property which education brings.

Such as he may properly exact, and ought to exact, that the money he is compelled to surrender for the education of the people shall accomplish that result.

There can be no debatable ground here. If the State asks, and, when it is not given, arbitrarily takes, from its citizens money enough to support its schools thirty or forty weeks in the year, its citizens should stipulate that the State shall compel the attendance of children thirty or forty weeks in the year.

If the one law is just, the other must be equally just. If public opinion assents to the unqualified right of the State to force a man to sustain schools for the benefit of his neighbor's children, that he may be indirectly benefited in turn, the man has an equally unqualified right to claim of the State that it *educate* his neighbor's children, or be branded as a spender or waster of money exacted under false pretences.

Take, for illustration, two of the States that have the best school laws in the country—Massachusetts in the East, Illinois in the West. In Massachusetts, one-fifth of the whole expenses of public schools are lost through absenteeism; and in some towns the percentage of attendance is as low as sixty. In Illinois, with truant laws in force, the average percentage of absenteeism for the last ten years has been about 19. One out of every five or six has not been so much as enrolled in school. Of those who are registered, not more than forty-five per cent. are in regular daily attendance during the time provided for them by the State—six and a half months.

The public-school fund—raised by the State from the people of the State, with the direct pledge that it should be used only for school purposes, and with the direct assertion that the amount raised was the amount needed—*has* been used only for school purposes, but has been used in such manner that more than one-half of it has been actually thrown away.

The citizen may well say: "I am taxed to support schools for *all* the children in the State, through six months and a half in the year. One-fifth of these children do not attend at all; and one-half of the remaining four-fifths are in attendance less than one-half the time. More than one-half of my tax, then, is extortion."

Here is a suggestive summary from the last census: The school population of the United States is thirteen millions, eight hundred and seventy-five thousand. Of this number but eight millions and ninety thousand are enrolled in any school. Of these but four millions five hundred and ninety-one thousand are in average daily attendance.

In a word, in behalf of the tax-payer, study in school should be compulsory for the child, for the same term through which the maintenance of the school is compulsory for the tax-payer. An equitable law for tax payer and child alike.

The school code of Brunswick, Luneberg, so long ago as 1738, enacted that "parents must not imagine, that, because the children are theirs, they can do with them what they please, but must remember that their children are also members of the commonwealth; that it is the duty of the government to have them educated, in order that the country may not be peopled by illiterate, brutal, and ill-mannered inhabitants."

The child is the ward of the State. If, socially, no one may come between a parent's right and a child's duty; politically, no one, whatever his relation, may come between the State and its subject. A man has no right to pursue a course that will certainly burthen society with criminals and paupers. If such tendency is manifest, society has the right to coerce him in self-defence. If the State protects the father's field from the spoiler, it should equally protect the child's field of the mind.

The State asserts its power and duty to restrain the parent who would dwarf the body or maim the limbs of his child. To dwarf the brain, and maim the intellect, ought to be regarded as worse than disabling the body; more harmful to the child, and freighted with worse calamities to the nation.

The system of compulsion protect the rights of the child, while it enforces the duties of the parent. To enforce duties is not an invasion of rights. For the State to provide education for every child, but fail to provide that every child shall qualify himself by such education for citizenship, is to maintain that the right of the parent to perpetuate ignorance—and, in consequence, thriftlessness, intemperance and crime—is above the right of the child to be educated, and the right of the State to self-preservation. Chancellor Kent once said: "The parent who sends his son into the world uneducated defrauds the community of a useful citizen, and bequeathes a nuisance." The State should abate and abolish nuisances. It enforces the right to send back from its shores paupers and criminals already raised. It should enforce the right to prevent their being raised in its midst. Criminals and paupers are not created; they grow.

It holds that the majority shall rule. The majority has decided, from the foundations of this government, that the entire body of its people shall be educated; yet it supinely consents to the constant impeding and violation of this law, and tamely submits to the incessant overthrow of the will of the

intelligent majority, by the reckless or selfish minority.

It grants to all its male citizens, not disqualified by crime, the authority of the ballot. Suffrage is power over others; and, to power over others, no *right* can possibly exist. Whoever wishes to exercise it is bound to acquire the necessary qualifications, as far as their acquisition is practicable to him; and the conditions should be such as all can fulfill. An educational condition, and that of no mean order, is one that the poorest can, and that the poorest should be compelled to, fulfill.

WOMEN AT THE UNIVERSITY.

HAVING been in happy operation for twenty-nine years as a university exclusively for men, in the year 1870 it opened its doors in all departments for the admission of women. According to the most recent returns, one hundred and seventeen are now availing themselves of the right to university instruction thus recognized. In the distribution which they have made of themselves among the several departments, there is no little significance—four of them having chosen the law, forty-seven medicine, and sixty-six literature and science. Before 1870 there were several colleges in America which had adopted the system of co-education; but all of these had adopted that system from the beginning. Michigan is the first university which having begun its life, and attained eminent success upon the old exclusive system, then deliberately incorporated upon itself the new and more comprehensive plan. The resolution to do so was by no means a hasty one, or taken with much cheerfulness. It had been under consideration for twenty years, and when adopted at last, it was adopted with no little anxiety. Our experience has, I think, convinced everybody here that this anxiety was not well founded. Neither good order nor the scholarship of the university has suffered any harm from the presence of ladies in its class-rooms; while the physical disasters to the women themselves, which an eminent authority has of late clearly demonstrated to be the penal consequences of feminine toil at the dry and arduous tasks of universal study, have thus far strangely failed to make their appearance in this neighborhood. Indeed, the ladies here seem to thrive ludicrously well under the rugged regimen to which they have been put; and their omission to verify the predictions of an *a priori* alarm is something bordering upon the cruel. A benevolent mind observing these things can hardly do less than utter a word of kindly caution to all persons who still desire to take unalloyed comfort in the doctrine that women are not fit for universities, or that universities are not fit for women; such persons should abjure the neighborhood of institutions like the University of Michigan, and faithfully limit themselves to speculative data.—*M. C. Tyler.*

PHILADELPHIA STATISTICS.

THE whole number of pupils attending the schools at the close of the year 1875 was as follows:

The Central High School,	601
The Girls' Normal School,	655
63 Grammar Schools,	13,967
29 Consolidated Schools,	7,031
127 Secondary Schools,	24,308
224 Primary Schools,	48,990
Making a total of 445 schools, having a membership of	95,552

The following is a classified statement of the sexes in the schools at the close of 1875:

SCHOOLS.	MALES.	FEMALES.	TOTAL.
High	601	655	1,256
Grammar	6,766	7,201	13,967
Consolidated	3,759	3,272	7,031
Secondary	1,747	12,561	24,308
Primary	24,857	24,133	48,990
Total	47,730	47,822	95,552

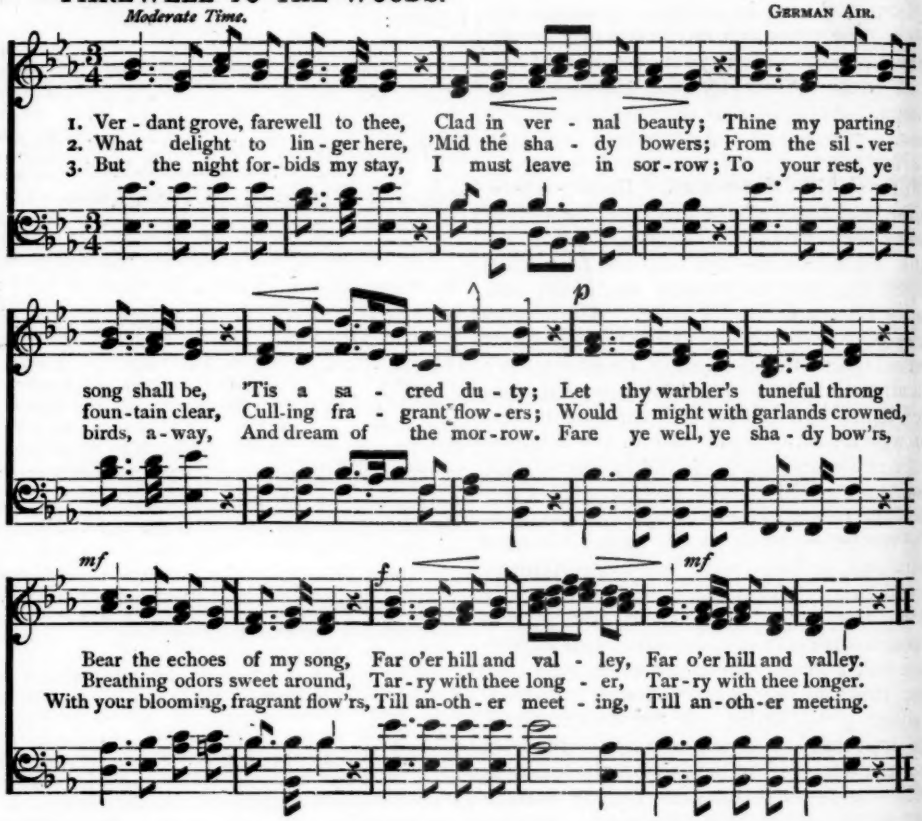
Attending January 1, 1875,	92,562
Admitted during "	60,469
Leaving " "	57,541
Remaining December 31, "	95,552
Average attendance,	82,975

The amount appropriated by City Councils for the use of the Board during 1875, was	$1,646,929	29
Brought from the books of 1874	22,756	90
	$1,669,686	19
Expended during the year,	1,634,653	26
Unexpended and merging into the City Treasury,	$ 35,032	93

THE colored schools in the state of Delaware are said to be in a demoralized condition. According to a law passed by the last Legislature the taxes paid by the colored people were to be disbursed by the Delaware Association for the benefit of the colored children. None of this tax has been paid over as yet, and as a consequence only thirteen or fourteen colored schools are now in operation in the state. Poor Delaware!

MENDELSSOHN, Bartholdy Felix, was the son of a rich merchant and banker of Hamburg, and was born in that city A. D. 1809. The early development of the musical faculty in him forces him into comparison with the precocious Mozart, but his more fortunate position saved him from the premature drudgery of public display. His earliest musical instructor was the natural guardian of his infancy, his mother. At eight years of age he was esteemed a prodigy, and not without reason. He could then play at sight the most intricate scores of Bach, and, without premeditation, transpose most difficult exercises into all sorts of keys. He also evinced a wonderful faculty in extemporizing upon a given theme. At this period he was put under the care of the severe but methodical Zelter, a man not disposed to give way to fervid impressions, yet warmly devoted to his "glorious boy." Zelter, writing to Goethe, in 1821, tells him, "I desire to show your face to my favorite pupil before I die." Upon the circle which surrounded Goethe as its centre, the young musician made a profound impression, winning, at the same time, the affection of all. Before his father would allow him to devote himself to music as his profession, he took him to Paris to consult the then aged Cherubini. The ordeal proposed by that consummate musician to test the proficiency of the aspirant was the composition of a *Kyrie* for chorus and full orchestra, which was accomplished to the

FAREWELL TO THE WOODS.

Moderate Time. GERMAN AIR.

1. Ver - dant grove, farewell to thee, Clad in ver - nal beauty; Thine my parting
2. What delight to lin - ger here, 'Mid the sha - dy bowers; From the sil - ver
3. But the night for - bids my stay, I must leave in sor - row; To your rest, ye
p
song shall be, 'Tis a sa - cred du - ty; Let thy warbler's tuneful throng
foun - tain clear, Cull - ing fra - grant flow - ers; Would I might with garlands crowned,
birds, a - way, And dream of the mor - row. Fare ye well, ye sha - dy bow'rs,
mf
f
mf
Bear the echoes of my song, Far o'er hill and val - ley, Far o'er hill and valley.
Breathing odors sweet around, Tar - ry with thee long - er, Tar - ry with thee longer.
With your blooming, fragrant flow'rs, Till an - oth - er meet - ing, Till an - oth - er meeting.

perfect satisfaction of the renowned judge. Throughout the period of his celebrity, he was not only distinguished for his composition, but still more as a performer. Language was exhausted in the attempt to describe his excellence as a pianist, and the churches were invaded by crowds, who always thronged the aisles when he was expected to play on the organ. In a word, the only thing he could not do on the organ was to "play the people out." The more effectively he played, the more fixed the congregation remained, and an instance is on record how once at St. Paul's cathedral, the vergers managed to check the energy of the performer by stopping the bellows of the instrument. In 1846, he completed, and himself conducted, at Birmingham, the oratorio of Elijah, the reception of which left his warmest admirers nothing to desire, but it was in the decrees of that unsearchable Providence which often shows us the highly gifted

"——To mock our fond pursuits,
And teach our humbled hopes that life is vain,"

that this star, the cynosure of all observers, should sink to the horizon before it had reached its culminating point. The honors which accumulated upon him were oppressive to the constant sense of fatigue that possessed him. To a young friend who begged him to play after the triumphant conclusion of the Birmingham festival, he replied mournfully that he could not. The abiding shadow of the unseen world was settling upon him. In 1837, he had accepted the post of director of the concerts at Leipsic. In this city he continued to reside till his death, which happened in 1847, at the age of thirty-eight years.